

# Overview of Severance Tax and Federal Mineral Lease Financing and Price Management Strategies

**Prepared for the** 

Legislative Interim Committee on Severance Tax and Federal Mineral Lease Revenues

**August 28, 2007** 



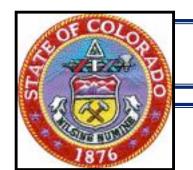
#### **Presentation Overview**

- New Mexico utilization of severance tax and federal mineral lease revenues.
- New Mexico severance tax bonding program.
- Comparison of New Mexico bonding program with Montana and Wyoming.
- Comparison of Colorado energy production with peer states.
- Natural resource price volatility and the impact on state revenues.
- > Energy price management strategies.

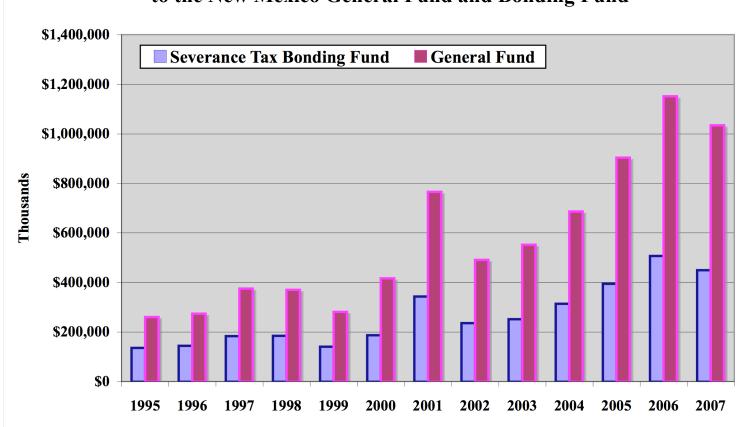


#### **Severance Tax Collections in New Mexico**

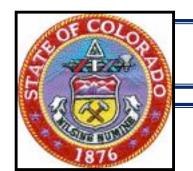
- Severance taxes have been collected by the State for the General Fund since the adoption of the Severance Tax Act in 1937.
- Oil & Gas School Tax and Oil & Gas Conservation Tax rates combine to total 3.33% on oil and 4.18% on natural gas marketable sales value, with structural modifications, deductions and incentives that have been implemented over time.
- Creation of the Severance Tax Bonding Fund in 1959 provided a trust fund to which tax receipts and federal mineral lease revenues could be dedicated for the purposes of funding capital projects.
- Since 1961, *certain* Severance Tax receipts and federal mineral lease revenues deposited into the Bonding Fund, to be utilized for funding bond debt service.
- ➤ Oil & Gas Severance Tax dedicated to the Bonding Fund levies tax rate on oil and natural gas of 2.5% on marketable sales value increased to 3.75% in 1974, with structural modifications, deductions and incentives implemented over time.
- Local *ad valorem* production taxes add an additional 1% to bring total severance tax rate to approximately 9%, before deductions.
- Severance Tax Permanent Fund created in 1973 to receive residual funds from the Bonding Fund and serve as an endowment for capital projects, and given constitutional status in 1982. Current balance is approximately \$4.5 billion.



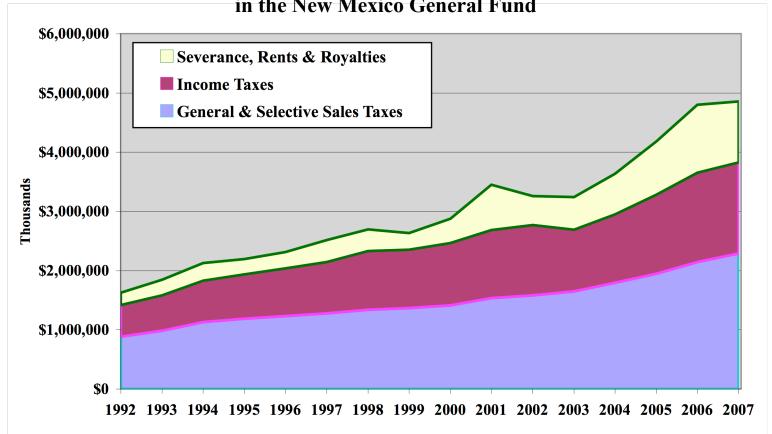
# Severance Tax and Federal Mineral Lease Revenues to the New Mexico General Fund and Bonding Fund







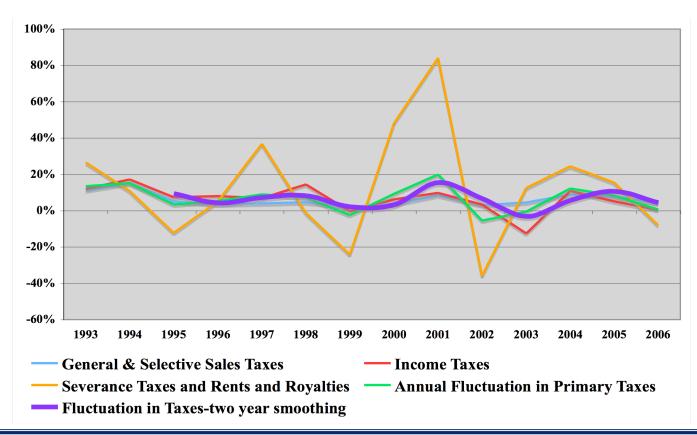
#### Role of Severance Tax and Federal Mineral Lease Revenues in the New Mexico General Fund



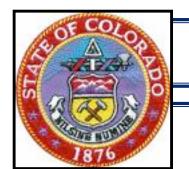




# Volatility of Severance Tax and Federal Lease Revenues Mitigated by and Partially Offsets Fluctuations in Other Core Revenue Streams







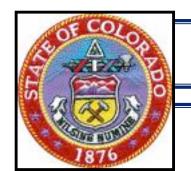
# Leveraging Severance Tax Bonding Fund Revenues

- ➤ Since the creation of the Bonding Fund, Severance Tax Bonds have been issued by the State Board of Finance to fund legislatively approved capital projects.
- ➤ Since 1999, Supplemental Severance Tax Bonds have been issued to fund local school capital projects approved by the Public School Capital Outlay Council.
- ➤ In addition to the sale of Severance Tax and Supplemental Severance Tax Bonds, the State issues short-term severance tax and supplemental severance tax funding notes to intercept excess funds available in the Bonding Fund prior to the transfer to the Permanent Fund.
- ➤ Proceeds from Severance Tax Bonds and Supplemental Severance Tax Bonds are an important source of capital financing for the State.
- Additional State sources of funding for capital projects include:
  - → General obligation bonds (subject to public referendum)
  - → Highways bonds (gas taxes, vehicle registration and road user fees)
  - → New Mexico Finance Authority (dedicated revenues)
  - → Surplus general fund balances

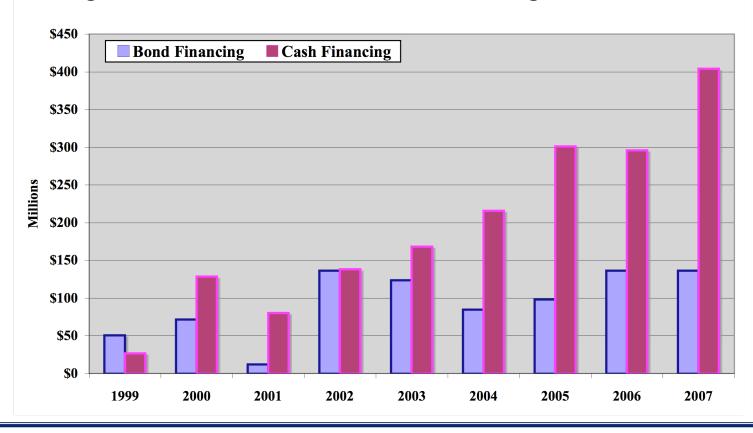


# Principal Sources of New Mexico Capital Funding by Fiscal Year (dollars in millions)

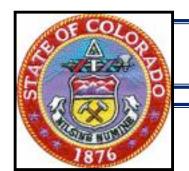
_	2003	2004	2005	2006	2007	Total
General Obligation Bonding Program						
General Obligation Bonds	\$135.1	-	\$122.1	-	\$143.3	\$400.5
Subtotal	135.1	-	122.1	-	143.3	400.5
Severance Tax Bonding Program						
Severance Tax Bonds	76.6	74.5	87.6	136.1	136.4	511.2
Severance Tax Funding Notes	56.3	63.7	87.8	102.1	193.3	503.2
Supplemental Severance Tax Bonds	45.0	10.0	10.0	-	-	65.0
Supplemental Severance Tax Funding Notes	111.8	151.8	213.3	193.6	210.8	881.3
Subtotal	289.7	300.0	398.7	431.8	540.5	1,960.7
Other Sources						
General Fund	36.9	183.4	238.6	454.6	548.4	1,461.9
Transportation Bonds	16.0	743.6	_	-	458.1	1,217.7
New Mexico Finance Authority	-	39.0	5.6	23.6	23.2	91.4
Subtotal	52.9	966.0	244.2	478.2	1,029.7	2,771.0
Total	\$477.7	\$1,266.0	\$765.0	\$910.0	\$1,713.5	\$5,132.2

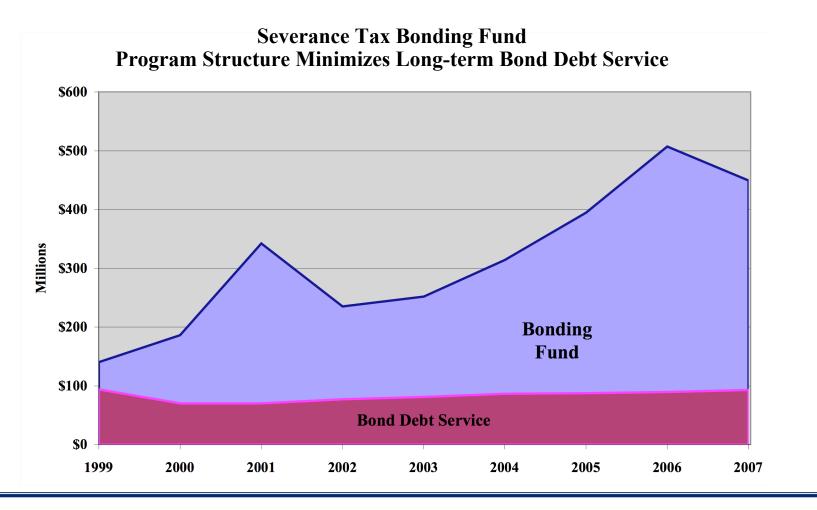


#### Severance Tax Bonding Fund High Current Prices Result in More Cash Financing than Bond Issuance

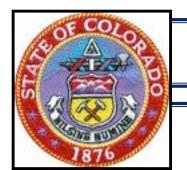




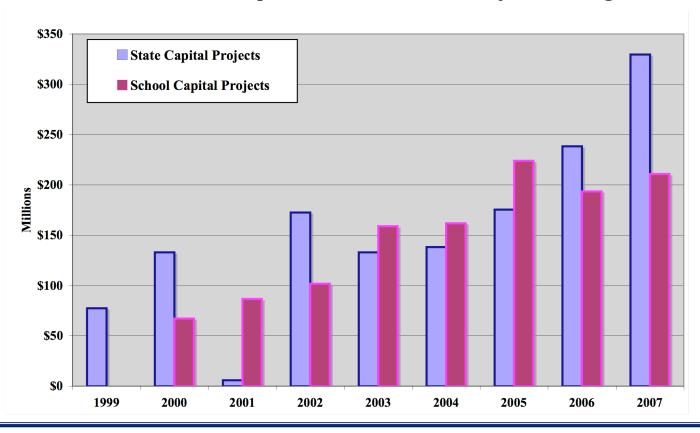








#### Severance Tax Bonding Fund Annual State Capital and Local School Project Funding







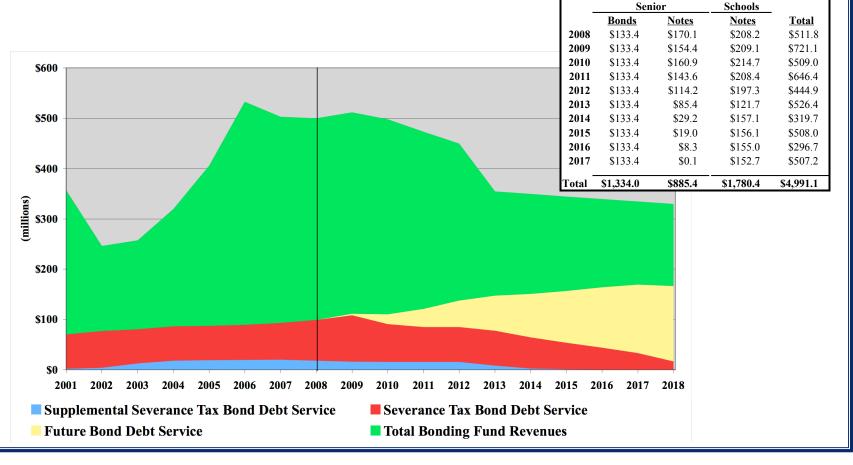
# **Constraints Governing New Mexico Bonding Program**

- Flow of funds provides that each December 31 and June 30 of each fiscal year, excess funds in the Bonding Fund are transferred into the Severance Tax Permanent Fund.
- ➤ [Senior] Severance Tax Bonds can be issued so long as in each year, total debt service on new and outstanding bonds does not exceed 50% of the total Bonding Fund receipts for the fiscal year preceding the sale of the new bonds.
- Long-term Supplemental Severance Tax Bonds can be issued so long as in each year, total debt service on new and outstanding senior and supplemental bonds bonds does not exceed 62.5% of the total Bonding Fund receipts for the fiscal year preceding the sale of the new bonds
- Supplemental Severance Tax Notes can be issued so long as in each year, total debt service on new and outstanding senior and supplemental bonds bonds does not exceed 95% of the total Bonding Fund receipts for the fiscal year preceding the sale of the new bonds.
- Historically, bonds have been limited to 10-years, matching the life of the underlying proven reserves.
- The State Board of Finance provides periodic capital capacity projections, based on consensus revenue estimates, and reflecting a policy of allocating an equal amount of long-term bonds annually over a ten-year horizon.

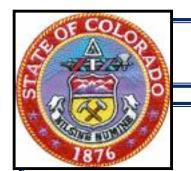




#### Historical and Projected Bonding Fund Projected Issuance, Revenues and Debt Service







# **Bond Programs Leveraging Energy-based Revenues**

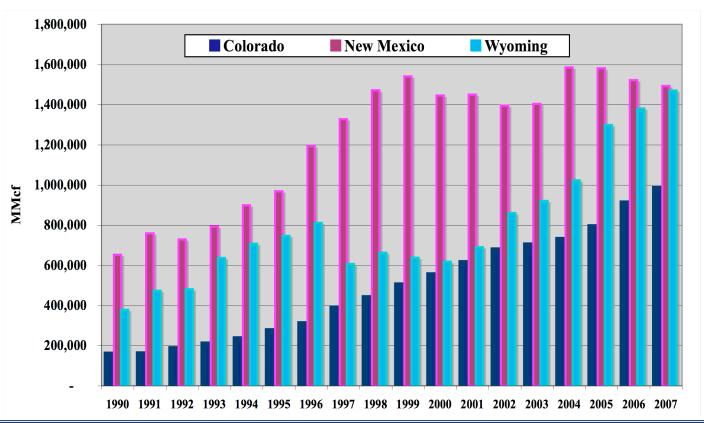
- Among the Rocky Mountain states, New Mexico, Montana and Wyoming have active bonding programs based on severance taxes and federal mineral lease revenues.
- Each program is tailored to particular funding needs of the state and the capital program purposes.
- Key program attributes include:

	NM STB	NM SSTB	Montana	Wyoming
S&P/Moody's	AA/Aa2	AA-/Aa3	AA-/A1	AA/
Pledged revenues	Oil/gas/coal severance taxes	Oil/gas/coal severance taxes	Coal severance taxes	Federal mineral lease revenues
Additional bonds test	2.00x	1.60x	2.00x	3.00x
Debt service coverage (at time of rating)	6.90x	5.41x	2.55x	39.00x



## **Rocky Mountain States Production**

#### **Natural Gas Production from Reserves**

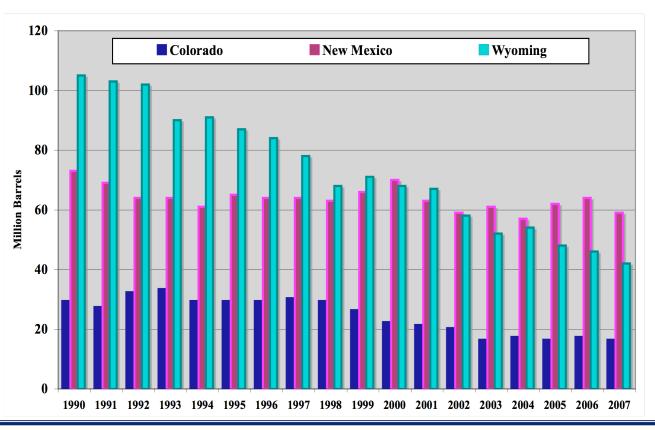






## **Rocky Mountain States Production**

#### **Crude Oil Production from Reserves**

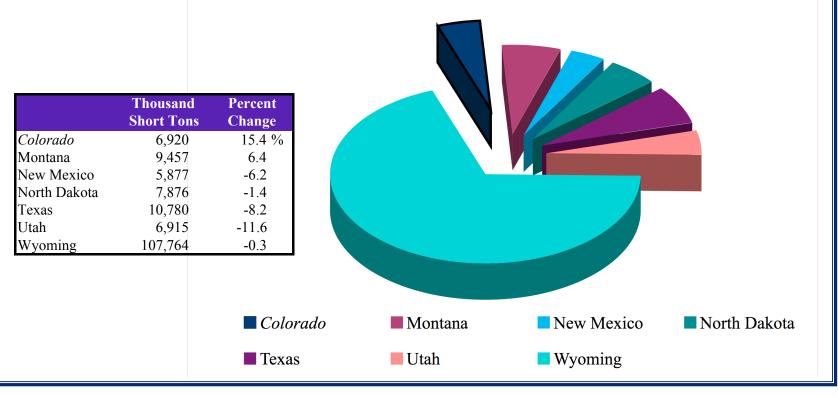






## **Rocky Mountain States Production**

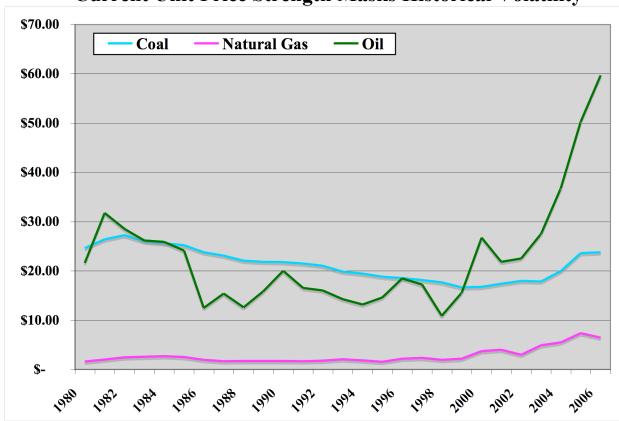
#### **Coal Production Market Share – 2006**





## **Energy Prices since 1980**

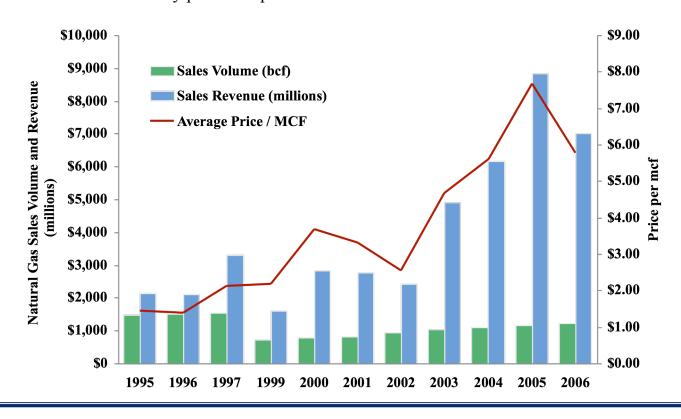
#### **Current Unit Price Strength Masks Historical Volatility**





#### Colorado Natural Gas Industry Price, Production and Revenues

◆ Over the past decade, prices have ranged from \$2.18 to \$7.67 with price peaks in 1997, 2000 and 2005 followed by price and production declines.

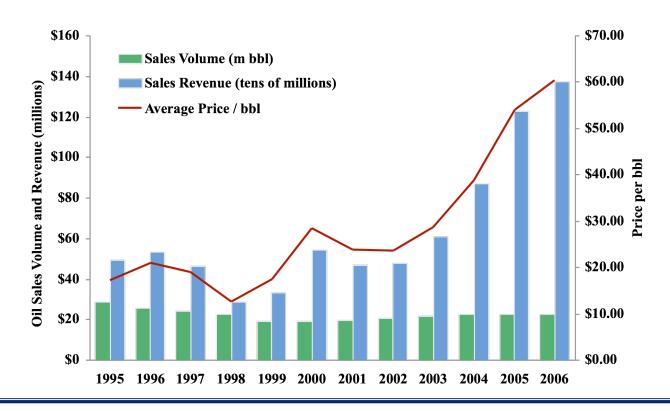




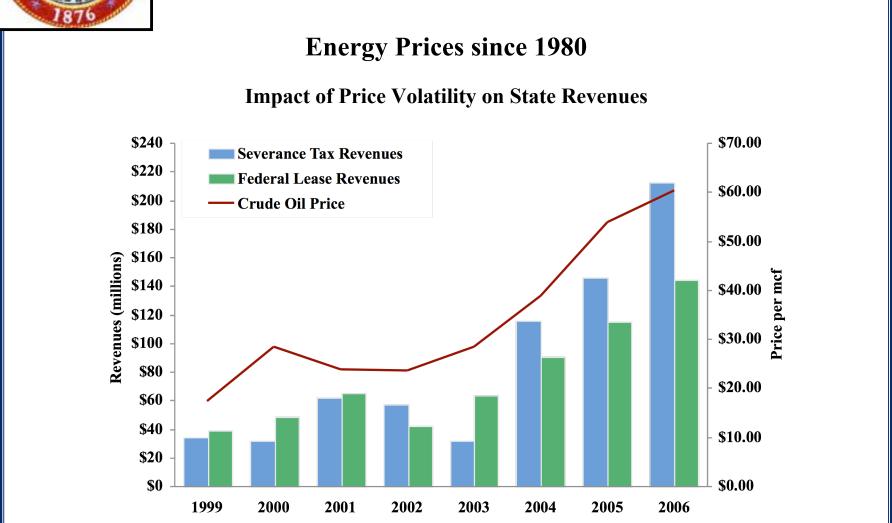


#### Colorado Oil Industry Price, Production and Revenues

♦ Over the past decade, prices have ranged from \$17.19 to \$60.32 with price peaks in 1996, 2000 and 2006.



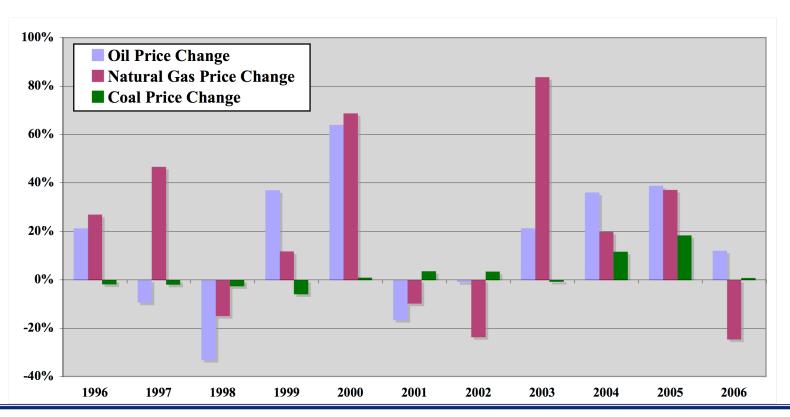






## **A Decade of Energy Price Changes**

#### Year Over Year Price Volatility Directly Impacts State Revenues and Planning







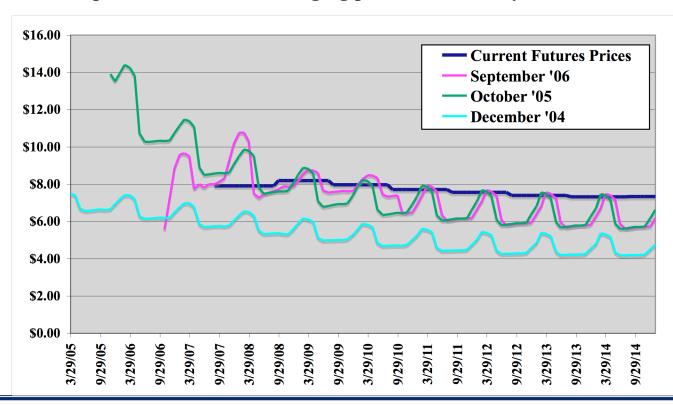
#### Oil and Natural Gas Price Management Strategies

- ◆ Natural resource prices directly affect the State of Colorado revenues.
- ♦ The State is vulnerable to price swings in energy markets, as unanticipated price declines affect both state and local government operations, capital spending and reserve levels.
- ◆ Commodity price management strategies can enable the State to mitigate price volatility.
  - → Price floors can provide insurance protection against decline in price.
  - → Price collars can provide downside insurance protection in exchange for cap on upside.
  - → Price swaps can lock-in firm future commodity price levels.
- ◆ Price hedging risks include *Market Risk, Counterparty Risk and Basis Risk*.
- → The fundamental determinant of the decision to implement price management strategies is as much philosophical as financial.



# **Price Volatility and Revenue Projections**

Futures market provides basis for managing price risks for buyers and sellers out 10 years





#### **Natural Gas Price Management Products**

- ➤ Hedging products in the natural gas futures market allow producers or consumers to reduce their risk exposure to future price volatility.
- ➤ Hedging products are based on a *Reference Price* that is the price basis for the transaction. The most liquid products trade on the *NYMEX* and reflect the Henry Hub price as the Reference Price. New Mexico natural gas revenues in contrast reflect Permian and San Juan basin pricing.
- > State of New Mexico, like Colorado, is in the same position in the natural gas market as a producer: *it* benefits from price increases and is hurt by price declines.
- ➤ Hedging products include:
  - → *Price Swap:* Provides for the exchange of payments with a *Counterparty* to lock in a guaranteed commodity price for a defined *term*, for a defined *notional amount*.
  - → *Price Floor:* Protects against a price decline below a defined *strike price* floor, in exchange for an up front payment or *premium*.
  - → *Price Collar:* Protects against a price decline below a defined *strike price* floor, in exchange for accepting a price cap, or *strike price* ceiling, above which payments are made to the *Counterparty*.



#### Use a Price Swap to Lock-in Tax Revenues

State pays the reference market price per mcf times the contract notional volume.

State

State

Counterparty pays the State a fixed price per mcf times the contract notional volume.

- ➤ *Goal:* Lock-in future severance tax revenues from natural gas price production.
- Notional amount of swap would be based on a percentage of State gas production *times* the applicable tax rate to hedge that same percentage of State revenues.
- The State would make variable payments to the Counterparty based on the swap notional volume *times* the reference market price, in exchange for payments based upon a fixed price *times* the notional volume for the fixed term of the swap contract.
- ➤ In the current market, the State can lock-in a 2009 price of approximately \$8.20 mcf, above the current market price below \$6.00.

Producers pays tax to the State based upon the volume of production times the market wellhead prices times the tax rates. Natural Gas Producers

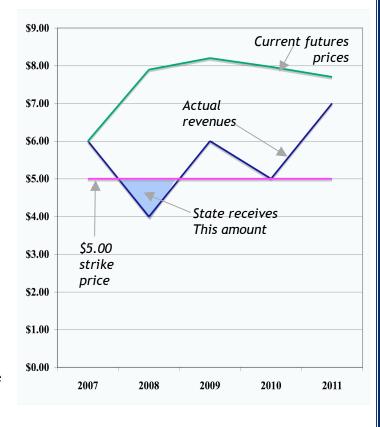


#### Creating a *Price Floor* to Protect Against Price Decline

- **Goal:** Protect against significant revenue decline.
- Create a \$5.00 floor (for example) for three years to protect against severe price declines.
  - → Price insurance providing at \$5.00 floor is well below current futures market price of \$8.20 gas price in 2009, and therefore the premium cost is very small.
  - The cost of a floor contract, indicated as a cost per mcf, is a function of the floor level, or "strike price" and the term, and increases as the floor rises and the term of the contract gets longer.

	Floor Level			
Term	\$4.00	\$5.00	\$6.00	
One year	0.06	0.14	0.36	
Three years	0.07	0.12	0.36	
Five years	0.10	0.20	0.42	

- ➤ This means that the cost of a creating a \$5.00 floor for three year with respect to a 1% severance tax on 1,300 MMcf of natural gas production would cost approximately \$1.5 million annually. [.01\*.12\*1,300,000,000]
- ➤ If the average price for one year were \$1.00 below the floor, the State would receive \$13 million, while if actual prices realized over time are above the contract strike price, the floor insurance contracts would expire worthless.



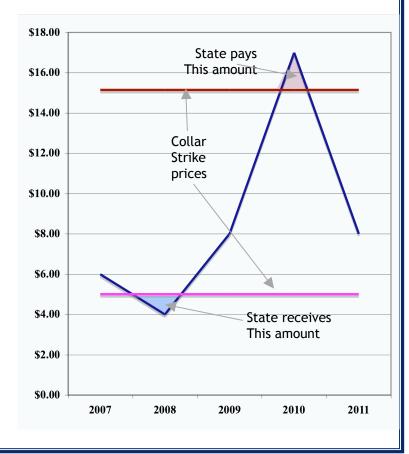


#### Combine Puts and Calls to Create a Price Collar

- ➤ *Goal:* Achieve price insurance without budgeted expenditure. Sell "call" contracts to fund purchase of price insurance contracts to create a "costless" collar.
  - → With a collar, the State would receive payments if the price of natural gas falls below the put strike price, and pay the Counterparty in the event prices rise above the call strike price.
  - The following price matrix indicates the ceiling price one would have to accept to achieve a floor a no "out-of-pocket" cost.

	Floor Level		
Term	\$4.00	\$5.00	\$6.00
One year	\$10.15	\$12.10	\$11.95
Three years	\$12.60	\$15.15	\$15.25
Five years	\$15.50	\$17.50	\$18.50

- This means that if one wanted to create a \$5.00 floor for three years under State severance tax receipts with respect to a defined level of production volume, it could achieve that floor in exchange for accepting a price ceiling of \$15.15.
- The benefit of a "costless" collar is that no current revenues are required to create the price floor. The disadvantage of a collar is that the State would forgo a portion of its revenues as natural gas prices rise above the ceiling.





# **Considering Price Management Strategies**

## **Advantages and Disadvantages**

Swaps	Advantages  Locks in revenues on production volume based on reference price.	<b>Disadvantages</b> No participation in price increases for volume subject to swap contract.
Floors	Provides downside price protection on production volume hedged.	Requires up-front premium payment.
	Retains revenue upside on market price increases.	
Collar	Sale of call option funds purchase of price floor.	Reduces or eliminates up-front premium cost for floor.
		Reduces/eliminates State participation in price increases.



#### **Hedge Contract Risks**

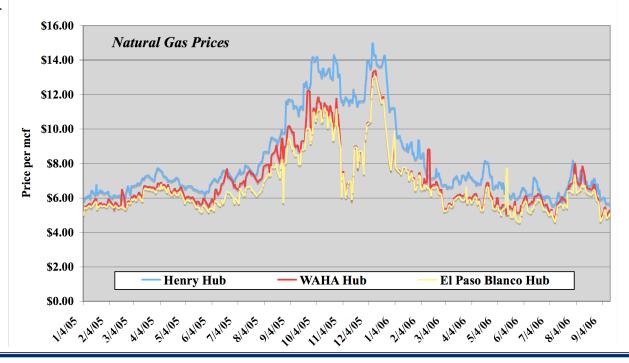
- ➤ *Market Risk*: As with swap contracts, hedge contracts are financial instruments that gain and lose value based on changes in market conditions.
  - → The primary risk of a put contract is that the State pays the upfront premium and prices never fall, in which event the contract would expire with no value.
  - → The risk of a Collar is that prices would rise above the call strike price, resulting in the State having to pay revenues to the Counterparty.
- **Counterparty Risk**: This is the risk that the Counterparty fails to make their required payments under the terms of the contract. This is addressed through collateralization.
- ➤ Basis Risk: As illustrated in the graph below, western producer prices can deviate from Henry Hub price which is the reference price for the NYMEX natural gas futures and options market. Historically, for example, Blanco hub pricing has been \$1-2 below the Henry Hub, though following Hurricane Katrina this spread widened substantially as gas from western states could not meet east coast demand due to pipeline constraints.
  - → While the State can utilize Over-the-Counter (OTC) contracts tied to regional prices to reduce its exposure to fluctuations between western and Henry Hub prices that are the reference price for NYMEX contracts, the price of reduced basis risk is decreased contract liquidity and increased costs.



#### Basis Risk: Henry Hub (NYMEX) and Western Gas

Post-Katrina market disruptions illustrate risk of a reference price basis-mismatch. For example, if the State sold NYMEX call options with a \$10.00 strike price and prices rose as below, it would owe payments based on Henry Hub while receiving tax revenues based on western prices, and a mismatch as high as \$5.00

per mcf.





#### **Examples of Issues Raised in Hedging Discussions**

- ♦ If energy prices continue to rise, giving away the upside revenues will be costly.
- → In high price market, people forget that prices can go down.
- ♦ Eliminating the price volatility will convert non-recurring revenues to recurring revenues, allowing size of government to grow.
- ♦ Purchasing put contracts over time to create price floor is more politically attractive than selling upside.
- ♦ Selling put contracts does not require budget authorization in the current year or the out-years, in contrast with calls or swaps, both of which require ability to make out-year payments.
- ◆ Payments on calls may be unappealing for a public entity regardless of benefits received.
- ◆ Public agencies using hedges to date tend to be transportation and utility agencies with buy-side price exposure, whose costs can go up dramatically, in contrast to state governments with severance tax and federal mineral lease revenue streams, who are positioned as sellers in the market.
- ♦ Basis mismatches are a significant for western gas vs. Henry Hub reference price.
- → Implementation of a "rolling" price management strategy, based on small transactions over time, would enable a market participant like the State to avoid taking large positions in a given market.





# **Appendix: Presentation Data Sources and Files**

#### > Natural Gas Production and Pricing

U.S. Department of Energy, Energy Information Administration ng\_prod\_sum\_dcu\_sco\_a.xls ng\_prod\_sum\_dcu\_snm\_a.xls ng\_prod\_sum\_dcu\_swy\_a.xls

#### Oil Production and Pricing

U.S. Department of Energy, Energy Information Administration pet\_crd\_pres\_dcu\_SCO\_a.xls pet\_crd\_pres\_dcu\_SNM\_a.xls pet\_crd\_pres\_dcu\_SWY\_a.xls

#### Coal Production and Pricing

U.S. Department of Energy, Energy Information Administration stb0708.xls t5p01p1.xls

#### Colorado Specific Slides

www.dola.colorado.gov/dlg/fa/Eiaf/slide\_show.html www.dola.state.co.us/LGS/FA/EMIA/miner/MinerWebTAbles.pdf

# Wyoming Severance Taxes and Federal Mineral Royalties:

Dean Temte
Legislative Analyst
Wyoming Legislative Service Office

Tuesday, August 28, 2007 1:15 P.M.

# 2006 Wyoming mineral production:

- 2006 oil production: 53.0 million barrels (ranked 7<sup>th</sup> in U.S.)
- 2006 natural gas production: 2.1 billion mcf (ranked 2<sup>nd</sup> in U.S.)
- 2006 coal production: 445.3 million tons (ranked 1<sup>st</sup> in U.S.)

# There are two production taxes on all Wyoming mineral production

- Both taxes are assessed based on the taxable value of the mineral production at the point of valuation.
- Point of valuation is the point where the production process is complete, but before processing or transportation.
- State severance tax Administered and collected by the Wyoming Department of Revenue. Severance tax is assessed on current year's production.
- County gross products tax Taxable value of previous year's production assessed by the Department of Revenue and certified to appropriate county and tax district. Counties bill and collect property taxes directly from mineral taxpayers based on the certified taxable value and the applicable tax district mill levy.

## Wyoming's Severance tax program

- Administered by the Wyoming Dept. of Revenue, Mineral Tax Division (19 full-time employees).
- Mineral taxpayers are required to report and remit severance taxes monthly, based on the taxable value of the current period's production.
- There are currently 838 severance tax filers. Roughly 40,000 filings (groups) reported. Taxpayers with an annual severance tax liability of less than \$30,000 may file annually. There are currently 510 annual filers.
- Over \$1 billion in severance taxes collected in FY 2006.
- The operator of the property (party responsible for dayto-day operation) is responsible for the reporting and remittance of severance taxes, with one exception.
- Oil and gas interest owners electing to take their share of production in-kind are responsible for the reporting and remittance of severance taxes on their share.

# Current severance tax rates and effective rates

- Severance tax rates are applied to the taxable value of the current period's mineral production at the point where the production process is complete, before processing and transportation.
- Current severance tax rates and effective tax rates

	current severance tax rate	effective tax rate
Crude Oil	6.00%	5.46%
Stripper Oil	4.00%	3.64%
Natural Gas	6.00%	4.86%
Surface Coal	7.00%	4.97%
<b>Underground Coal</b>	3.75%	3.19%
Trona	4.00%	1.16%
Uranium	4.00%	1.92%

#### Mineral Severance Taxes to All Accounts Fiscal Year Distribution by Mineral

Crude Oil	Natural Gas	Coal	Trona	Others	Total
\$54,598,527	\$128,073,614	\$109,711,373	\$6,012,061	\$1,038,386	\$299,433,961
\$68,127,067	\$229,972,369	\$122,317,716	\$7,539,180	\$1,169,890	\$429,126,222
\$71,557,596	\$349,664,757	\$133,353,154	\$7,758,262	\$1,233,159	\$563,566,928
\$101,130,974	\$465,857,637	\$148,945,690	\$9,095,299	\$1,627,254	\$726,656,854
\$133,837,369	\$673,431,324	\$180,844,372	\$9,776,115	\$3,187,738	\$1,001,076,918
\$131,300,000	\$399,300,000	\$182,400,000	\$12,500,000	\$2,100,000	\$727,600,000
\$134,700,000	\$457,000,000	\$187,900,000	\$12,700,000	\$2,100,000	\$794,400,000
\$139,300,000	\$517,700,000	\$193,600,000	\$12,800,000	\$2,300,000	\$865,700,000
\$143,800,000	\$557,100,000	\$199,600,000	\$12,900,000	\$2,600,000	\$916,000,000
\$147,600,000	\$573,800,000	\$206,200,000	\$13,000,000	\$2,800,000	\$943,400,000
\$151,000,000	\$591,000,000	\$213,500,000	\$13,000,000	\$3,000,000	\$971,500,000
	\$54,598,527 \$68,127,067 \$71,557,596 \$101,130,974 \$133,837,369 \$131,300,000 \$134,700,000 \$139,300,000 \$143,800,000 \$147,600,000	\$54,598,527 \$128,073,614 \$68,127,067 \$229,972,369 \$71,557,596 \$349,664,757 \$101,130,974 \$465,857,637 \$133,837,369 \$673,431,324 \$131,300,000 \$399,300,000 \$134,700,000 \$457,000,000 \$139,300,000 \$517,700,000 \$143,800,000 \$557,100,000 \$147,600,000 \$573,800,000	\$54,598,527 \$128,073,614 \$109,711,373 \$68,127,067 \$229,972,369 \$122,317,716 \$71,557,596 \$349,664,757 \$133,353,154 \$101,130,974 \$465,857,637 \$148,945,690 \$133,837,369 \$673,431,324 \$180,844,372 \$131,300,000 \$399,300,000 \$182,400,000 \$134,700,000 \$457,000,000 \$187,900,000 \$139,300,000 \$517,700,000 \$193,600,000 \$143,800,000 \$557,100,000 \$199,600,000 \$147,600,000 \$573,800,000 \$206,200,000	\$54,598,527 \$128,073,614 \$109,711,373 \$6,012,061 \$68,127,067 \$229,972,369 \$122,317,716 \$7,539,180 \$71,557,596 \$349,664,757 \$133,353,154 \$7,758,262 \$101,130,974 \$465,857,637 \$148,945,690 \$9,095,299 \$133,837,369 \$673,431,324 \$180,844,372 \$9,776,115 \$131,300,000 \$399,300,000 \$182,400,000 \$12,500,000 \$134,700,000 \$457,000,000 \$187,900,000 \$12,700,000 \$139,300,000 \$517,700,000 \$193,600,000 \$12,800,000 \$143,800,000 \$557,100,000 \$199,600,000 \$12,900,000 \$147,600,000 \$573,800,000 \$206,200,000 \$13,000,000	\$54,598,527 \$128,073,614 \$109,711,373 \$6,012,061 \$1,038,386 \$68,127,067 \$229,972,369 \$122,317,716 \$7,539,180 \$1,169,890 \$71,557,596 \$349,664,757 \$133,353,154 \$7,758,262 \$1,233,159 \$101,130,974 \$465,857,637 \$148,945,690 \$9,095,299 \$1,627,254 \$133,837,369 \$673,431,324 \$180,844,372 \$9,776,115 \$3,187,738 \$131,300,000 \$399,300,000 \$182,400,000 \$12,500,000 \$2,100,000 \$134,700,000 \$457,000,000 \$187,900,000 \$12,700,000 \$2,100,000 \$139,300,000 \$517,700,000 \$193,600,000 \$12,800,000 \$2,300,000 \$143,800,000 \$557,100,000 \$199,600,000 \$12,900,000 \$2,600,000 \$147,600,000 \$573,800,000 \$206,200,000 \$13,000,000 \$2,800,000

## History of Wyoming's Severance Tax

- Wyoming's severance tax was enacted in 1969, with a 1% severance tax rate on all mineral production. Severance tax was based on the valuation of prior year's production, with payment due on July 1.
- The Permanent Wyoming Mineral Trust Fund (PWMTF) was created by constitutional amendment in 1974. requiring a 1.5% severance tax on oil, natural gas, coal, and other minerals designated by the legislature to be deposited to the PWMTF.
- Severance tax rates were increased through the years to provide an earmarked source of revenue from the severance tax on specified minerals to fund various accounts, programs, and entities, including water development, highway funding, local governments, capital facilities, and general government operations.
- Severance tax rates have also been decreased through the years to provide economic relief or economic incentive to Wyoming's mineral industries.
- Severance tax assessment changed from being assessed on prior year production to being assessed on current year production in 1981.

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							Workover						Workover		Under-
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Year	Oil	Oil	Oil	Oil	Oil	Oil	Oil	Oil	Gas	Gas	Gas	Gas	Gas	Coal	Coal
1968	1.0%	1.0%	1.0%	1.0%	1.0%				1.0%	1.0%	1.0%			1.0%	1.0%
1969	1.0%	1.0%	1.0%	1.0%	1.0%				1.0%	1.0%	1.0%			1.0%	1.0%
1970	1.0%	1.0%	1.0%	1.0%	1.0%				1.0%	1.0%	1.0%			1.0%	1.0%
1971	1.0%	1.0%	1.0%	1.0%	1.0%				1.0%	1.0%	1.0%			1.0%	1.0%
1972	1.0%	1.0%	1.0%	1.0%	1.0%				1.0%	1.0%	1.0%			1.0%	1.0%
1973	3.0%	1.0%	3.0%	3.0%	3.0%				3.0%	3.0%	3.0%			3.0%	3.0%
1974	4.0%	2.0%	4.0%	4.0%	4.0%				4.0%	4.0%	4.0%			4.4%	4.4%
1975	4.0%	2.0%	4.0%	4.0%	4.0%				4.0%	4.0%	4.0%			4.8%	4.8%
1976	4.0%	2.0%	4.0%	4.0%	4.0%				4.0%	4.0%	4.0%			9.7%	9.7%
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No severance tax assessed on 1980 production, because assessment changed from being based on prior year production to being based on current year production in 1981.

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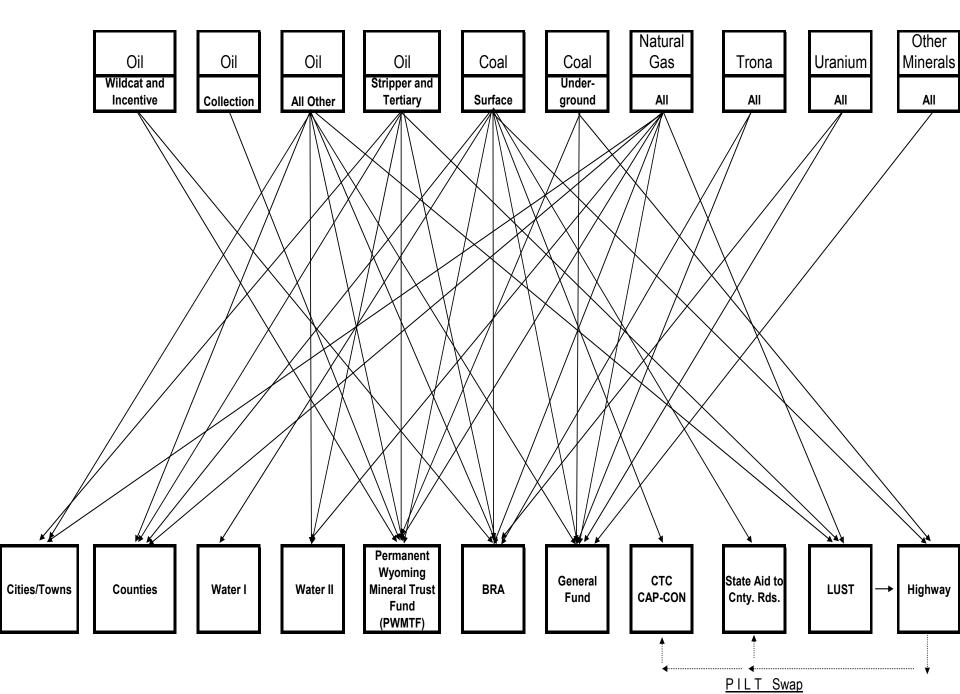
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### "Old Law" Severance Tax Distribution

- Historically (prior to FY 2002), severance taxes were distributed to the specific accounts or entities for which they were "earmarked" (i.e. 2% of the trona severance tax was distributed to the state General Fund and the other 2% was distributed to the state Budget Reserve Account).
- This method, while creating a specified revenue stream for accounts and entities, resulted in a multitude of distribution methods that were specific to the particular mineral severance tax being distributed.
- It also resulted in severance tax distributions to specific accounts and entities which fluctuated with mineral prices and production levels.

#### Distribution of Severance Taxes: "Old Law"



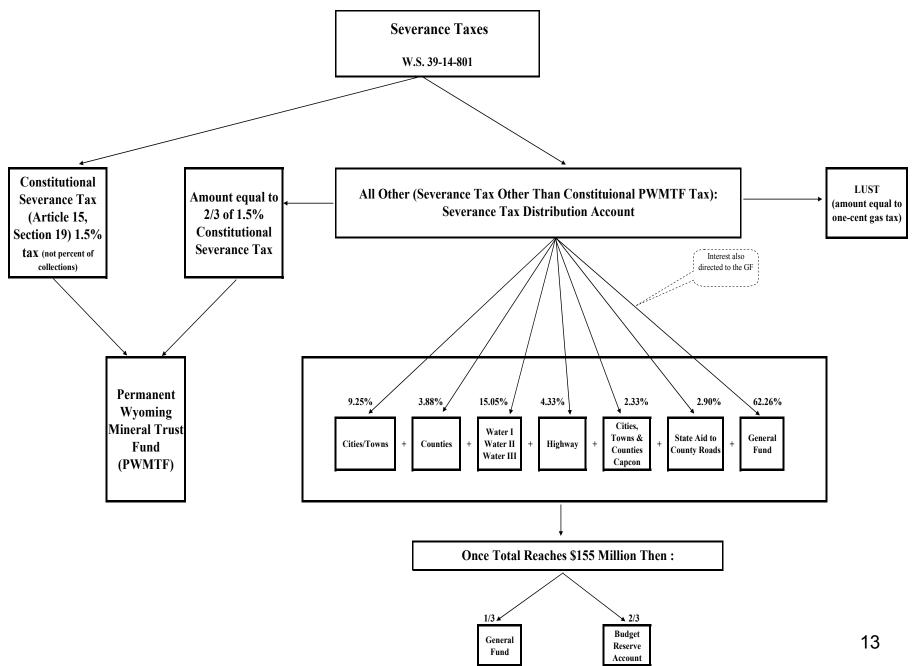
## "De-earmarking Legislation"

- During the 2000 and 2001 legislative sessions, the Wyoming Legislature went through the process of revising the statutes regarding the distribution of severance taxes. This process has been referred to as "de-earmarking".
- The distribution of Federal Mineral Royalties were also amended during the de-earmarking process, but were not changed dramatically.
- Also included in this new legislation was the ability for the state of Wyoming to distribute funds to local governments through direct appropriation.

## Current Severance Tax Distribution

- Constitutional 1.5% of taxable value of oil, natural gas, and coal distributed to the Permanent Wyoming Mineral Trust Fund (PWMTF).
- All other severance taxes are distributed to the Severance Tax Distribution Account (STDA).
- Before further distribution from STDA, an additional 1% is distributed to the PWMTF, and an amount equal to one-cent fuel tax is distributed to L.U.S.T. accounts.
- After the above distributions, up to \$155 million each fiscal year is distributed from the STDA to nine different accounts/entities.
- STDA amounts in excess of the \$155 million cap are distributed one-third to the state General Fund and twothirds to the state Budget Reserve Account.

#### Distribution of Severance Taxes: Current Law

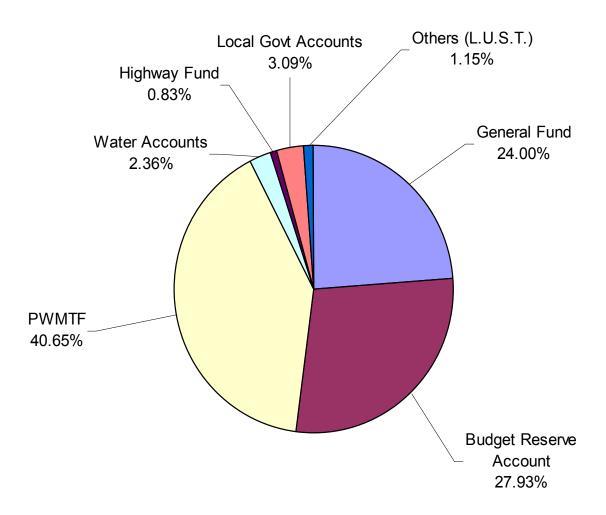


#### Mineral Severance Taxes - Fiscal Year Distribution by Account

Fiscal	General	Budget		Water	Highway	Cities and		C.T.C.	State Aid		
Year	Fund	Reserve Acct	PWMTF	Accounts	Fund	Towns	Counties	Cap Con	County Roads	L.U.S.T.	Totals
Historical:											_
2002	\$117,185,445	\$39,270,594	\$72,269,085	\$22,755,544	\$7,435,471	\$15,101,587	\$6,334,307	\$4,386,530	\$4,495,040	\$10,200,358	\$299,433,961
2003	\$149,549,109	\$105,317,276	\$104,690,345	\$22,566,411	\$6,950,287	\$14,628,852	\$6,136,020	\$4,400,000	\$4,500,000	\$10,387,922	\$429,126,222
2004	\$184,408,599	\$171,441,376	\$136,108,467	\$23,271,820	\$7,717,057	\$15,004,762	\$6,293,694	\$4,386,528	\$4,495,031	\$10,439,594	\$563,566,928
2005	\$225,275,895	\$251,580,640	\$176,579,787	\$22,845,343	\$7,958,111	\$15,671,001	\$6,573,145	\$4,386,525	\$4,495,025	\$11,291,382	\$726,656,854
2006	\$240,254,868	\$279,579,500	\$406,945,374	\$23,636,580	\$8,269,185	\$16,162,339	\$6,622,389	\$3,611,540	\$4,495,031	\$11,500,112	\$1,001,076,918
Projected:											
2007	\$186,700,000	\$180,400,000	\$291,300,000	\$23,400,000	\$6,700,000	\$14,300,000	\$6,000,000	\$3,600,000	\$4,500,000	\$10,700,000	\$727,600,000
2008	\$199,700,000	\$206,300,000	\$318,900,000	\$23,400,000	\$6,700,000	\$14,300,000	\$6,000,000	\$3,600,000	\$4,500,000	\$11,000,000	\$794,400,000
2009	\$213,600,000	\$234,100,000	\$348,300,000	\$23,400,000	\$6,700,000	\$14,300,000	\$6,000,000	\$3,600,000	\$4,500,000	\$11,200,000	\$865,700,000
2010	\$223,300,000	\$253,600,000	\$369,100,000	\$23,400,000	\$6,700,000	\$14,300,000	\$6,000,000	\$3,600,000	\$4,500,000	\$11,500,000	\$916,000,000
2011	\$228,600,000	\$264,200,000	\$380,300,000	\$23,400,000	\$6,700,000	\$14,300,000	\$6,000,000	\$3,600,000	\$4,500,000	\$11,800,000	\$943,400,000
2012	\$234,000,000	\$275,000,000	\$391,900,000	\$23,400,000	\$6,700,000	\$14,300,000	\$6,000,000	\$3,600,000	\$4,500,000	\$12,100,000	\$971,500,000

Information taken from Table 4 of January 2007 Consensus Revenue Estimating Group (CREG) forecast.

#### **Severance Tax Distributions: FY 2006**



#### Permanent Wyoming Mineral Trust Fund (PWMTF)

- PWMTF created by constitutional amendment, effective Dec. 12, 1974.
- Roughly 40% of all severance taxes are currently distributed to the PWMTF.
- PWMTF also funded by direct appropriation (\$356.56 million since FY 2001).
- PWMTF corpus balance as of June 30, 2006: \$2.97 billion.
- Investment earnings from the PWMTF flow to the state General Fund (\$123.95 million in FY 2006, representing 12.7% of total FY 2006 state General Fund revenues).
- \$2.12 billion in investment income from the PWMTF has been directed to the state General Fund since its inception.

#### Permanent Wyoming Mineral Trust Fund History Corpus Balances, Revenues and Income to General Fund Fiscal Years 1975 through 2006

	PWMTF Corpus	revenue	direct approp.	PWMTF Corpus	Annual PWMTF	Cummulative
	Beg. Balance	directed to the	directed to the	<b>Ending Balance</b>	Income Directed	<b>PWMTF Income</b>
Fiscal Year	July 1	<b>PWMTF</b>	<b>PWMTF</b>	June 30	to the GF	Directed to the GF
1975	0	9,432,338		9,432,338	0	0
1976	9,432,338	19,428,952		28,861,290	342,153	342,153
1977	28,861,290	22,845,050		51,706,340	2,629,995	2,972,148
1978	51,706,340	26,806,288		78,512,628	3,483,189	6,455,337
1979	78,512,628	36,537,587		115,050,215	6,716,382	13,171,719
1980	115,050,215	40,680,788		155,731,003	11,992,117	25,163,836
1981	155,731,003	52,595,385		208,326,388	18,291,063	43,454,899
1982	208,326,388	128,545,202		336,871,590	26,121,955	69,576,854
1983	336,871,590	127,056,702		463,928,292	45,662,283	115,239,137
1984	463,928,292	126,052,632		589,980,924	56,461,948	171,701,085
1985	589,980,924	131,436,950		721,417,874	67,503,145	239,204,230
1986	721,417,874	124,573,236		845,991,110	72,422,463	311,626,693
1987	845,991,110	62,469,489		908,460,599	74,082,280	385,708,973
1988	908,460,599	58,617,467		967,078,066	72,641,330	458,350,303
1989	967,078,066	50,788,173		1,017,866,239	71,052,004	529,402,307
1990	1,017,866,239	56,348,413		1,074,214,652	86,158,060	615,560,367
1991	1,074,214,652	59,529,207		1,133,743,859	94,158,421	709,718,788
1992	1,133,743,859	53,234,067		1,186,977,926	92,724,655	802,443,443
1993	1,186,977,926	53,381,267		1,240,359,193	88,342,154	890,785,597
1994	1,240,359,193	76,178,105		1,316,537,298	86,042,101	976,827,698
1995	1,316,537,298	46,543,901		1,363,081,199	85,608,439	1,062,436,137
1996	1,363,081,199	44,144,889		1,407,226,088	86,526,776	1,148,962,913
1997	1,407,226,088	50,645,435		1,457,871,523	92,221,049	1,241,183,962
1998	1,457,871,523	64,055,864		1,521,927,387	101,277,447	1,342,461,409
1999	1,521,927,387	44,625,973		1,566,553,360	106,845,392	1,449,306,801
2000	1,566,553,360	62,778,772		1,629,332,132	117,485,136	1,566,791,937
2001	1,629,332,132	110,333,593	100,000,000	1,839,665,725	97,378,092	1,664,170,029
2002	1,839,665,725	74,167,207	50,000,000	1,963,832,932	90,510,496	1,754,680,525
2003	1,963,832,932	83,796,577	10,000,000	2,057,629,509	58,647,855	1,813,328,380
2004	2,057,629,509	144,762,853	50,000,000	2,252,392,362	98,110,315	1,911,438,695
2005	2,252,392,362	168,646,342	51,550,000	2,472,588,704	87,789,396	1,999,228,091
2006	2,472,588,704	500,770,606	95,011,745	2,973,359,310	123,952,616	2,123,180,707

## Wyoming's Gross Products tax program

- Administered by the Wyoming Dept. of Revenue, Mineral Tax Division (19 full-time employees)
- The gross products tax is based on the value of the minerals produced during the previous calendar year, reported to the Department of Revenue on an annual gross products return (due by February 25<sup>th</sup>).
- Taxable value of the previous calendar year's production is assessed by Department of Revenue and certified to the county and tax district where produced by June 1st.
- 2006 assessment of 2005 mineral production totaled \$14.9 billion, representing 71% of statewide total assessed valuation.
- Counties bill and collect property tax directly from mineral taxpayers based on certified taxable value and applicable tax district mill levy.
- Property taxes levied on 2005 mineral production are estimated at \$925.96 million, representing 69.5% of total property taxes levied.
- The operator of the property (party responsible for day-to-day operation) is responsible for reporting their production by filing an annual gross products return, with one exception.
- Oil and gas interest owners electing to take their share of production in-kind are responsible for reporting their share of production by filing an annual gross products return.

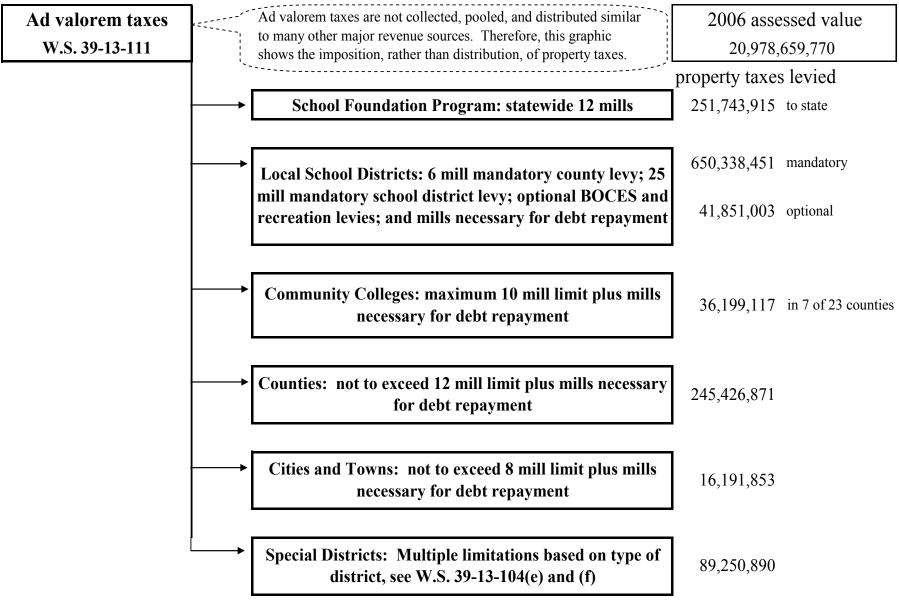
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Total State Assessed Valuation

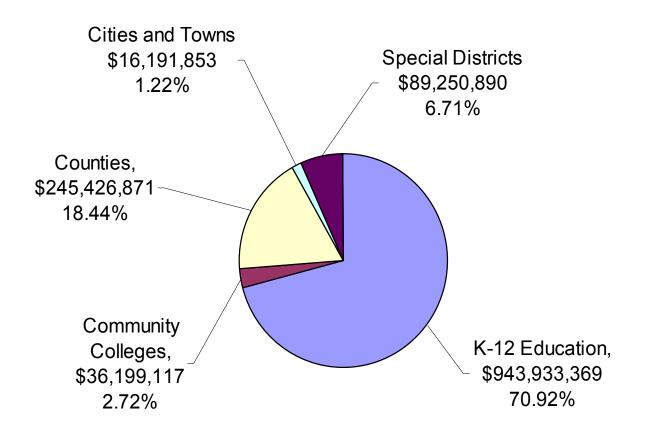
Calendar					Other	Minerals	Other	Grand
Year	Oil	Gas	Coal	Trona	Minerals	Totals	Property	Totals
Historical:								_
2001	\$1,080,018,231	\$3,882,089,465	\$1,506,337,295	\$209,191,934	\$61,089,137	\$6,738,726,062	\$4,430,580,865	\$11,169,306,927
2002	\$1,083,555,330	\$2,512,574,992	\$1,760,291,304	\$203,324,146	\$64,567,181	\$5,624,312,953	\$4,715,774,001	\$10,340,086,954
2003	\$1,244,211,776	\$5,265,135,004	\$1,846,983,332	\$195,203,377	\$64,488,534	\$8,616,022,023	\$5,063,514,295	\$13,679,536,318
2004	\$1,634,067,860	\$7,039,052,884	\$2,039,556,051	\$198,943,291	\$72,397,802	\$10,984,017,888	\$5,461,066,596	\$16,445,084,484
2005	\$2,152,842,718	\$10,134,180,366	\$2,280,138,621	\$255,216,361	\$83,997,233	\$14,906,375,299	\$6,072,284,471	\$20,978,659,770
Projected:								
2006	\$2,361,500,000	\$7,789,000,000	\$2,573,000,000	\$308,500,000	\$84,900,000	\$13,116,900,000	\$6,375,900,000	\$19,492,800,000
2007	\$2,411,500,000	\$7,122,900,000	\$2,648,800,000	\$314,800,000	\$90,700,000	\$12,588,700,000	\$6,694,700,000	\$19,283,400,000
2008	\$2,484,300,000	\$8,109,100,000	\$2,732,900,000	\$319,500,000	\$92,600,000	\$13,738,400,000	\$7,029,400,000	\$20,767,800,000
2009	\$2,575,300,000	\$9,147,800,000	\$2,817,700,000	\$322,800,000	\$103,100,000	\$14,966,700,000	\$7,380,900,000	\$22,347,600,000
2010	\$2,648,100,000	\$9,422,100,000	\$2,913,000,000	\$324,300,000	\$110,100,000	\$15,417,600,000	\$7,749,900,000	\$23,167,500,000
2011	\$2,716,400,000	\$9,704,800,000	\$3,019,400,000	\$324,300,000	\$115,700,000	\$15,880,600,000	\$8,137,400,000	\$24,018,000,000
2012	\$2,771,000,000	\$9,995,900,000	\$3,140,700,000	\$324,300,000	\$118,800,000	\$16,350,700,000	\$8,544,300,000	\$24,895,000,000

Information taken from Table 9 of January 2007 Consensus Revenue Estimating Group (CREG) forecast.

#### Ad Valorem (property) Taxes Levied



## Total Ad Valorem (Property) Taxes Levied on Statewide Assessed Value: Tax Year 2006

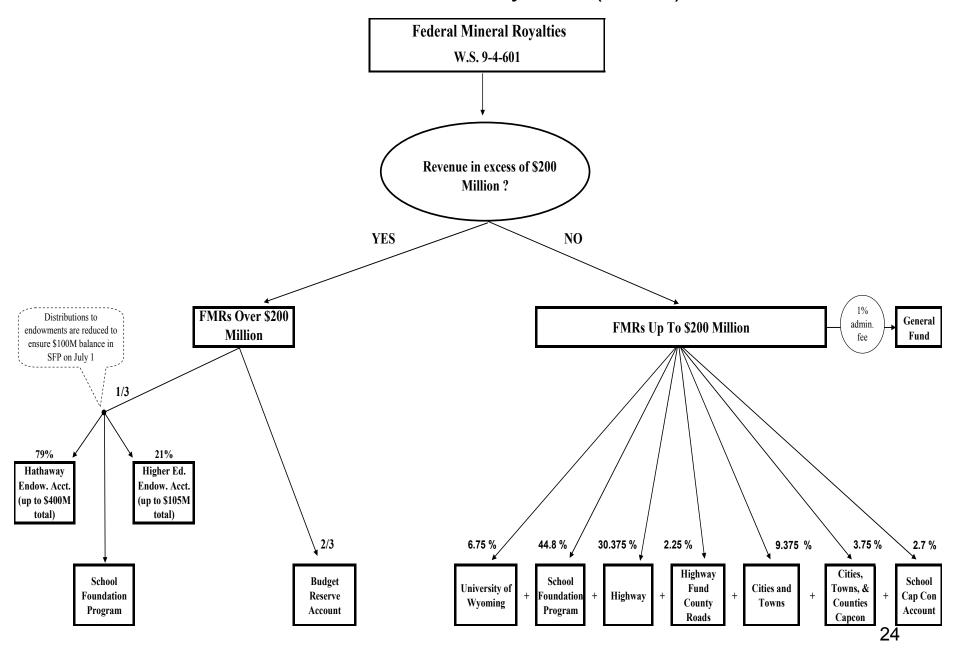


- Wyoming's Share of Federal Mineral Royalties (FMRs)
- The Minerals Management Service (MMS), a bureau of the U.S. Department of Interior, collects Federal Mineral Royalties (FMRs) on mineral production taken from federal lands.
- States receive roughly 50% of FMRs from MMS.
- A significant percentage of Wyoming mineral production comes from federal lands.
- 2006 Wyoming mineral production from federal lands
  - 33.7 million barrels of crude oil (63.7%)
  - 1.5 billion mcf of natural gas (71.3%)
  - 370.7 million tons of coal (83.2%)
- Wyoming's share of FMRs are received by the State Treasurer's Office. Over \$860.2 million received in FY 2006.

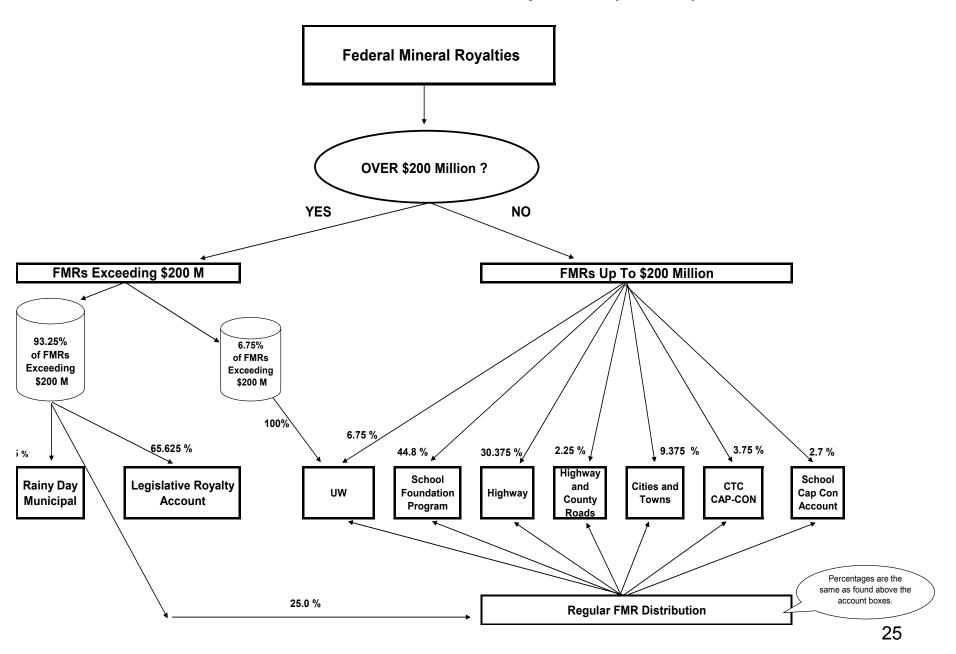
# Distribution of Wyoming's Share of Federal Mineral Royalties (FMRs)

- Wyoming's share of FMRs are distributed by the State Treasurer's Office in accordance with W.S. 9-4-601.
- The first \$200 million received in the fiscal year is distributed to seven different accounts/entities, and one percent is deposited to the state General Fund for administration.
- FMRs in excess of \$200 million are distributed one-third to the School Foundation Program (SFP) and two-thirds to the state Budget Reserve Account.
- Beginning in FY 2005, FMRs over the \$200 million cap distributed to the SFP are diverted 79% to the Hathaway Endowment Account and 21% to the Higher Education Endowment Account. These diversions will continue until the balance of the Hathaway Endowment Account reaches \$400 million and total distributions to the Higher Education Endowment Account reach \$105 million. These diversions are reduced as necessary to ensure a balance of \$100 million in the SFP as of July 1 each year. A total of \$250.6 million has been diverted through FY 2006.

#### Distribution of Federal Mineral Royalties (FMRs): Current Law



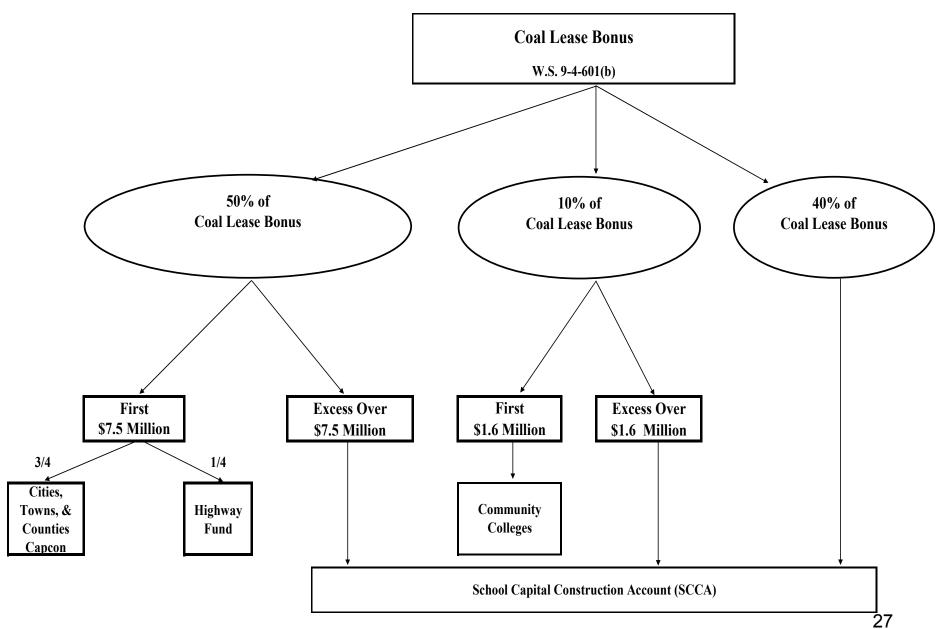
#### Distribution of Federal Mineral Royalties (FMRs): "Old Law"



#### Wyoming's Share of Coal Lease Bonuses

- The Minerals Management Service (MMS) also collects coal lease bonuses from coal producers who are issued Federal coal leases.
- Federal coal leases are offered through a competitive bidding process by the U.S. Dept. of Interior, Bureau of Land Management (BLM), and sold to the highest bidder at public auction. The highest bid must meet or exceed the lease's fair market value, as determined by the BLM.
- Coal lease bonuses are typically paid by lessees in five annual installments.
- States also receive roughly 50% of coal lease bonuses from MMS.
- Coal lease bonuses are a significant source of revenue for Wyoming. Over \$207.7 million in coal lease bonus revenue was received by the State Treasurer's Office in FY 2006. Coal lease bonus revenue is not included in the State's revenue forecast until the coal lease sale is final, and the first payment is received.
- Wyoming's share of coal lease bonuses are distributed by the State Treasurer's Office in accordance with W.S. 9-4-601(b).
- Coal lease bonuses are distributed to four different accounts/entities, with the large majority distributed to Wyoming's School Capital Construction Account (\$198.6 million in FY 2006).

#### Distribution of Coal Lease Bonuses: Current Law



#### **Coal Lease Bonuses - Distributions**

Fiscal	C.T.C.	Highway	School	Community	Total
Year	Cap Con	Fund	Cap Con	Colleges	Total
Historical:					
2002	5,625,000	1,875,000	67,797,236	1,600,000	76,897,236
2003	5,625,000	1,875,000	64,534,327	1,600,000	73,634,327
2004	5,625,000	1,875,000	38,168,047	1,600,000	47,268,047
2005	5,625,000	1,875,000	207,775,806	1,600,000	216,875,806
2006	5,625,000	1,875,000	198,653,794	1,600,000	207,753,794
Projected:					
2007	5,600,000	1,900,000	160,700,000	1,600,000	169,800,000
2008	5,600,000	1,900,000	160,700,000	1,600,000	169,800,000
2009	5,600,000	1,900,000	160,700,000	1,600,000	169,800,000
2010	unknown	unknown	unknown	unknown	unknown
2011	unknown	unknown	unknown	unknown	unknown
2012	unknown	unknown	unknown	unknown	unknown

Historical coal lease bonus information provided by Wyoming State Treasurer's Office.

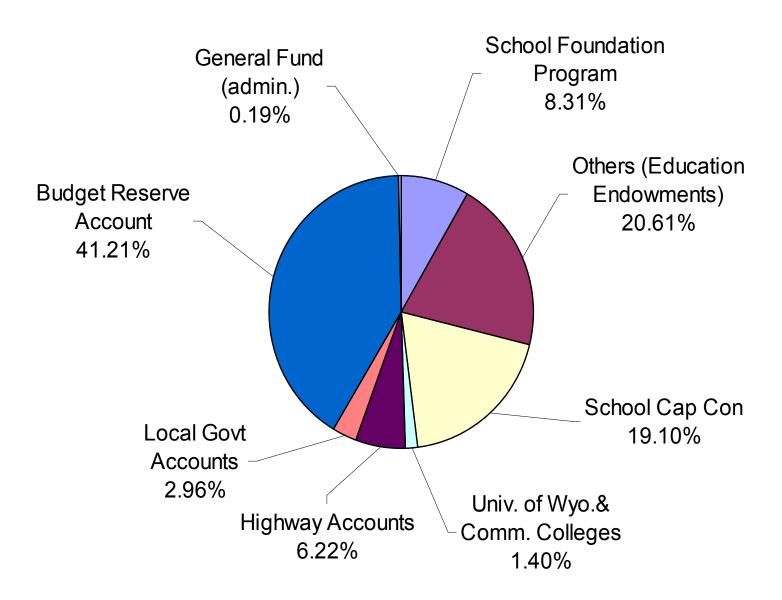
Projected coal lease bonuses taken from January 2007 Consensus Revenue Estimating Group (CREG) forecast.

Federal Mineral Royalties (Including Coal Lease Bonuses) - Fiscal Year Distribution by Account

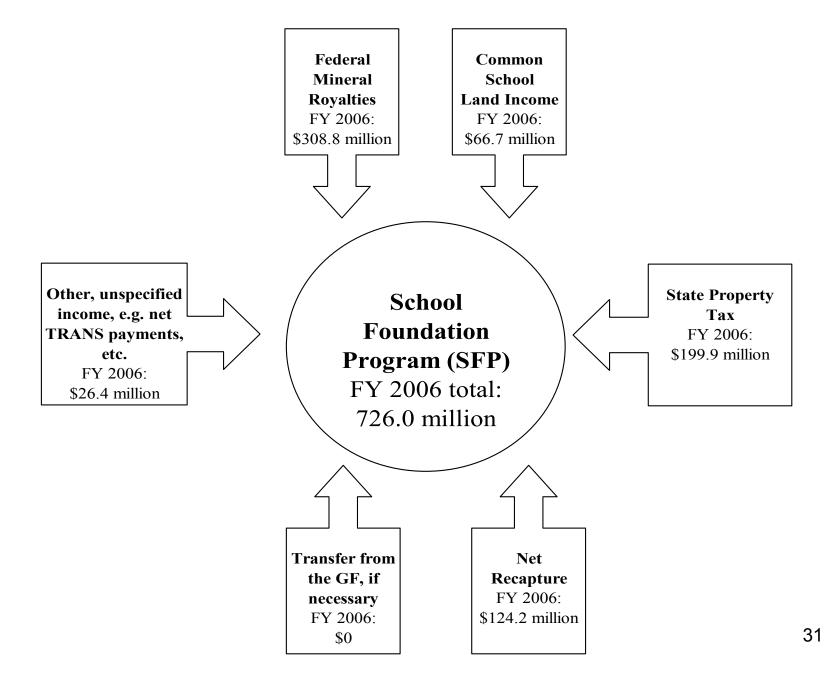
								Budget				
Fiscal	University of	School	Highway	Highway Fund	Cities and	C.T.C.	School	Reserve	Community		General Fund	
Year	Wyoming	Foundation	Fund	County Roads	Towns	Cap Con	Cap Con	Account	Colleges	Others	Administrative	Totals
Historical:												
2002	\$13,365,000	\$132,342,234	\$35,059,328	\$4,455,000	\$18,562,500	\$13,050,000	\$73,143,236	\$47,829,775	\$1,600,000	\$7,242,000	\$2,000,000	\$348,649,073
2003	\$13,365,000	\$156,262,611	\$62,017,500	\$4,455,000	\$18,562,500	\$13,050,000	\$69,880,327	\$135,076,695	\$1,600,000	\$0	\$2,000,000	\$476,269,633
2004	\$13,365,000	\$191,090,662	\$62,017,500	\$4,455,000	\$18,562,500	\$13,050,000	\$43,514,047	\$204,711,904	\$1,600,000	\$0	\$2,000,000	\$554,366,613
2005	\$13,365,000	\$201,172,871	\$62,017,500	\$4,455,000	\$18,562,500	\$13,050,000	\$213,121,806	\$285,903,765	\$1,600,000	\$30,525,901	\$2,000,000	\$845,774,343
2006	\$13,365,000	\$88,704,000	\$62,017,500	\$4,455,000	\$18,562,500	\$13,050,000	\$203,999,794	\$440,092,088	\$1,600,000	\$220,112,064	\$2,000,000	\$1,067,957,946
Projected:												
2007	\$13,400,000	\$236,400,000	\$62,000,000	\$4,500,000	\$18,600,000	\$13,100,000	\$166,000,000	\$295,400,000	\$1,600,000	\$0	\$2,000,000	\$813,000,000
2008	\$13,400,000	\$255,100,000	\$62,000,000	\$4,500,000	\$18,600,000	\$13,100,000	\$166,000,000	\$332,700,000	\$1,600,000	\$0	\$2,000,000	\$869,000,000
2009	\$13,400,000	\$274,900,000	\$62,000,000	\$4,500,000	\$18,600,000	\$13,100,000	\$166,000,000	\$372,300,000	\$1,600,000	\$0	\$2,000,000	\$928,400,000
2010	\$13,400,000	\$288,800,000	\$60,100,000	\$4,500,000	\$18,600,000	\$7,400,000	\$5,300,000	\$400,200,000	\$0	\$0	\$2,000,000	\$800,300,000
2011	\$13,400,000	\$296,400,000	\$60,100,000	\$4,500,000	\$18,600,000	\$7,400,000	\$5,300,000	\$415,400,000	\$0	\$0	\$2,000,000	\$823,100,000
2012	\$13,400,000	\$304,200,000	\$60,100,000	\$4,500,000	\$18,600,000	\$7,400,000	\$5,300,000	\$431,000,000	\$0	\$0	\$2,000,000	\$846,500,000

Information taken from Table 7 of January 2007 Consensus Revenue Estimating Group (CREG) forecast.

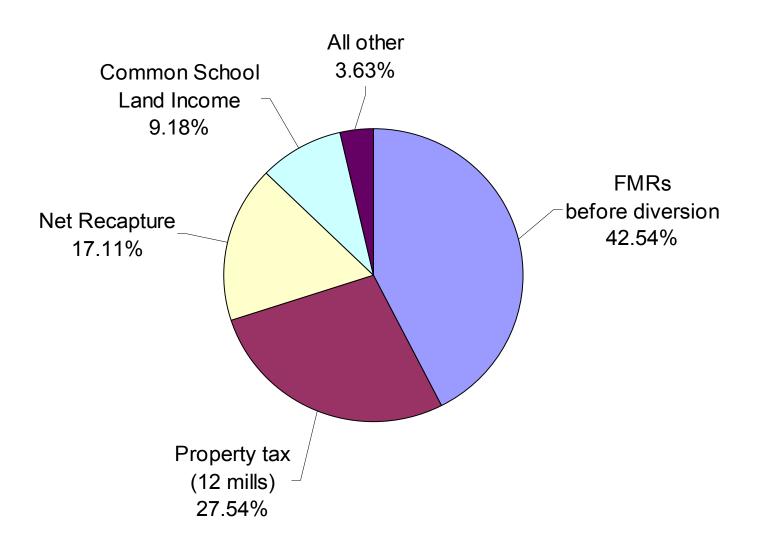
#### FMR and Coal Lease Bonus Distributions: FY 2006



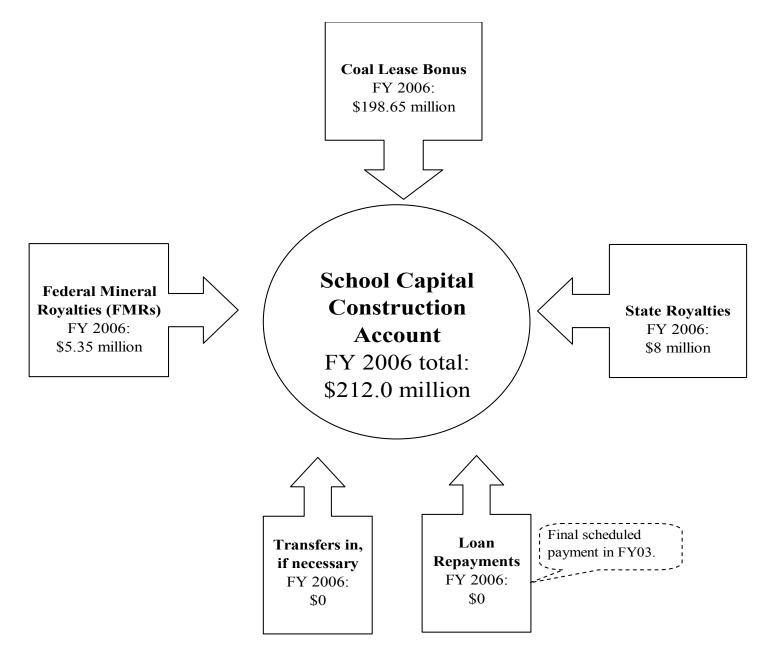
#### Distribution of Revenues to School Foundation Program (SFP): "Current Law"



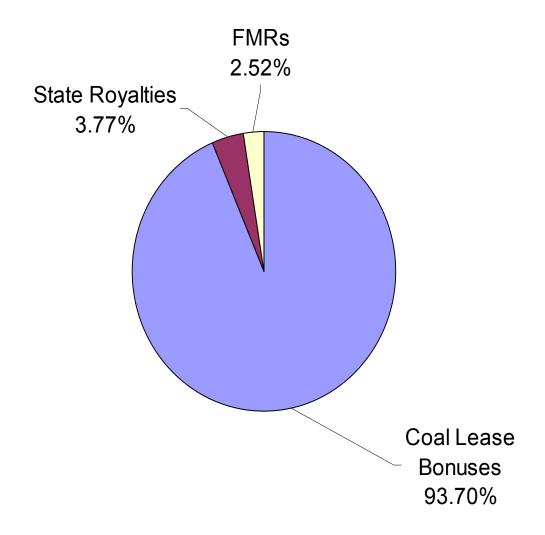
#### School Foundation Program (SFP) Revenues: FY 2006



#### Distribution of Revenues to School Capital Construction Account: "Current Law"



#### **School Capital Construction Account Revenues: FY 2006**



## Sharing Resources with Local Governments

- The state of Wyoming also shares its mineral revenues with local governments through direct appropriations for the following programs:
  - Direct distributions to local governments
  - Appropriations to various grant and loan programs
    - State Loan and Investment Board (SLIB)
    - Business Ready Community Program (WBC)
    - Community Facilities Program (WBC)
- The Select Committee on Local Government Financing was created during the 2007 legislative session. The select committee will study the issue, develop recommendations for changes (if any), and prepare legislation necessary for implementation to be considered during the 2009 General Session.

### Direct Distributions to Local Governments and Appropriations to Grant & Loan Programs 2001-02 Biennium through 2007-08 Biennium - through the 2007 General Session

Direct Distributions	FY 2001-02	FY 2003-04	FY 2005-06	FY 2007-08	Total
Distribution of Municipal Rainy Day Account (MRDA) in Nov. 2001 Jobs & Growth Reconciliation Act of 2003 to cities and towns Jobs & Growth Reconciliation Act of 2003 to counties FY 2005-06 Distribution to cities and towns, Ch. 95, 2004 Session Laws FY 2005-06 Distribution to counties, Ch. 95, 2004 Session Laws FY 2006 Distribution to cities and towns, Ch. 191, 2005 Session Laws FY 2006 Distribution to counties, Ch. 191, 2005 Session Laws FY 2006 Distribution to county road funds, Ch. 191, 2005 Session Laws FY 2007-08 Distribution to cities and towns, Ch. 35, 2006 Session Laws FY 2007-08 Distribution to counties, Ch. 35, 2006 Session Laws FY 2007-08 food tax exemption hold-harmless, Ch. 35, 2006 Session Laws FY 2008 Distribution to cities and towns, Ch. 136, 2007 Session Laws FY 2008 Distribution to counties, Ch. 136, 2007 Session Laws	\$41,594,812	\$2,885,214 \$2,114,786	\$40,250,000 \$17,250,000 \$15,325,000 \$11,975,000 \$6,100,000	\$59,833,333 \$33,166,667 \$2,900,000 \$46,600,000 \$15,910,333 \$9,205,167	\$41,594,812 \$2,885,214 \$2,114,786 \$40,250,000 \$17,250,000 \$15,325,000 \$11,975,000 \$6,100,000 \$59,833,333 \$33,166,667 \$2,900,000 \$46,600,000 \$15,910,333 \$9,205,167
Total Direct Distributions	\$41,594,812	\$5,000,000	\$90,900,000	\$167,615,500	\$305,110,312
Appropriations to Grant & Loan Programs	FY 2001-02	FY 2003-04	FY 2005-06	FY 2007-08	Total
Local Govt. CapCon., Ch. 76, 2000 Session Laws Local Govt. CapCon., Ch. 139, 2001 Session Laws Local Govt. CapCon., Ch. 83, 2002 Session Laws Business Ready Communities, Ch. 211, 2003 Session Laws Local Govt. CapCon., Ch. 95, 2004 Session Laws Business Ready Communities, Ch. 95, 2004 Session Laws Local Govt. CapCon., Ch. 191, 2005 Session Laws Business Ready Communities, Ch. 191, 2005 Session Laws Community Facilities, Ch. 233, 2005 Session Laws Local Govt. CapCon., Ch. 35, 2006 Session Laws Business Ready Communities, Ch. 35, 2006 Session Laws Community Facilities, Ch. 35, 2006 Session Laws Impact Mitigation - Capital Projects, Ch. 136, 2007 session laws County Block Allocations - Capital Projects, Ch. 136, 2007 session laws Emergency Reserve - Capital Projects, Ch. 136, 2007 session laws Business Ready Communities, Ch. 136, 2007 session laws	\$33,600,000	\$42,500,000 \$8,400,000	\$35,000,000 \$25,000,000 \$28,000,000 \$11,700,000 \$7,500,000 \$4,401,364 \$8,732,802	\$171,799,318 \$37,267,198 \$15,000,000 \$6,534,500 \$18,665,500 \$934,500 \$33,250,000	\$33,600,000 \$4,900,000 \$42,500,000 \$8,400,000 \$35,000,000 \$25,000,000 \$11,700,000 \$7,500,000 \$176,200,682 \$46,000,000 \$15,000,000 \$6,534,500 \$18,665,500 \$934,500 \$33,250,000
Total Appropriations to Grant & Loan Programs	\$38,500,000	\$50,900,000	\$120,334,166	\$283,451,016	\$493,185,182

\$80,094,812

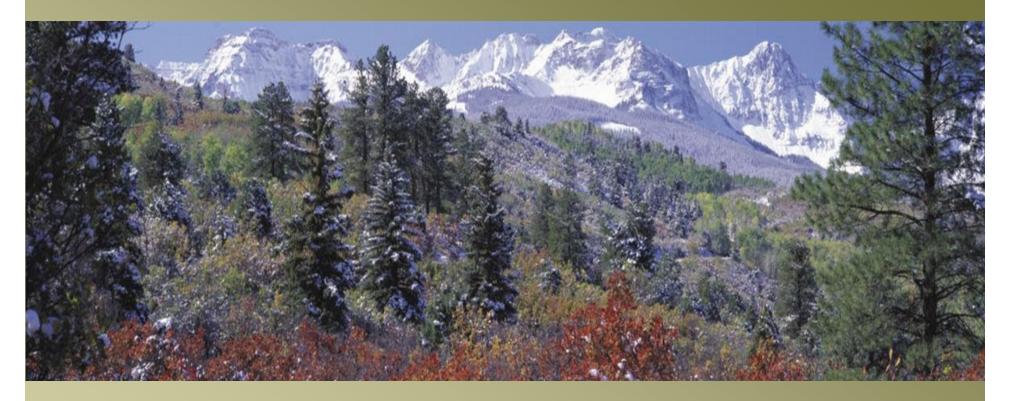
\$55,900,000

\$211,234,166

\$451,066,516

\$798,295,494

Total Direct Distributions and Grant & Loan Program Funding



#### **BEYOND TAXES:**

## CONTRIBUTIONS OF OIL AND GAS COMPANIES TO COLORADO COMMUNITIES

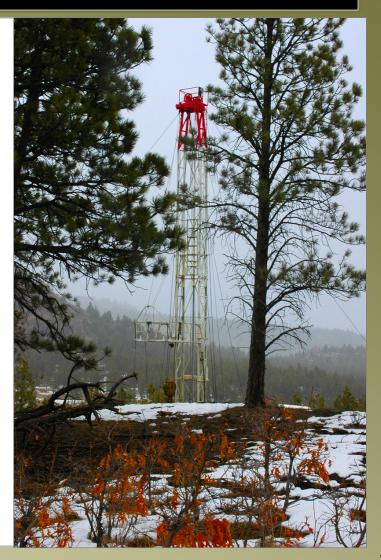
## 2007 Oil & Gas Economic Impact Analysis



- Total economic output: \$22.9 billion or 6.1% of the total gross state product (GSP)
- Tax revenue earned by state and local governments (production and equipment): \$640.5 million
- Total employment (direct, indirect and induced): 70,000 workers
- Average earnings per worker due to oil and gas activities: \$60,881
- Personal income taxes paid to State government:\$117.5 million
- Total business and personal income taxes paid to state and local governments:\$870.5 million
- Total private mineral royalties and lease payments: \$808 million

# Beyond Taxes and Economic Development: What are energy companies doing?

- Community Assistance and Development
- Supporting Local Arts
- Alliances with Education
- Environmental Stewardship



# What are energy companies doing for... community assistance and development?



## **Energy Outreach Colorado**

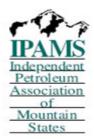












Join Energy Outreach Colorado and IPAMS for

#### ENERGY FOCUS 2007

A look at Colorado's energy environment and the affects on low-income families today and in the future.

The Brown Palace Ballroom Friday, February 2, 2007 7:30 – 9:30 A.M.

Breakfast Compliments of

JANUS INSTITUTIONAL

## Western Slope: Fire and Emergency Response



## Western Slope: Fire and Emergency Response

- EnCana, Delta and other companies donated to the Plateau Valley Fire District in the Piceance Basin for the purchase of a water tanker truck
- XTO Energy donated land appraised at \$400,000 for a Fire & Rescue Training Center between Durango and Bayfield. The facility will be shared by several city and rural Fire Departments
- Piceance Basin companies have formed incident response teams to support local emergency response agencies

## Blizzard in Eastern Colorado: Industry equipment used for snow removal on County, ranch roads



## Civic Contributions: Southern Colorado

- Pioneer Natural Resources donated over \$600,000 in 2006. Examples of local organizations who benefited:
  - YMCA
  - Trinidad Police Department
  - Trinidad Girl Scouts
  - Health Department
  - Local 4-H
  - Trinidad State Junior College
  - Local Schools
  - Red Cross
  - Habitat for Humanity
  - Trinidad Fire Department







## Civic Contributions: Western Slope

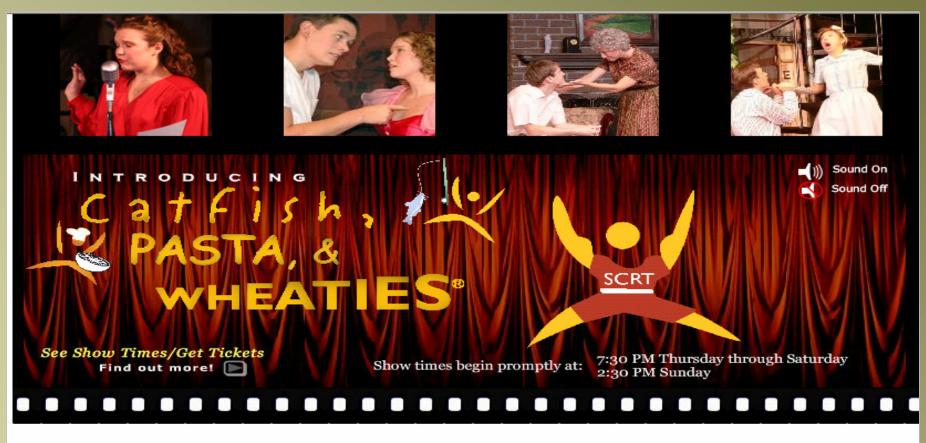
- Examples from one company EnCana:
  - ✓\$100,000 for City of Rifle Public Safety complex
  - ✓\$60,000 for Rio Blanco Weed Control Program
  - √\$50,000 to St. Mary's Hospital helipad
  - √\$50,000 to Pioneer Medical Center in Meeker
- Other companies making similar contributions to their communities – for example, B-P leading corporate contributor to United Way of Southwest Colorado

## Examples: Other Forms of Community Assistance

- Loaning equipment to local governments for road maintenance and snow removal
- Hauling water for fire departments responding to wildfires
- Trained emergency responders and communications equipment
- Fundraising, toy drives, sponsorships—<u>our</u> <u>employees are part of the community</u>

# What are energy companies doing for... local arts in Colorado?

## Southern Colorado Repertory Theater



The SCRT is most grateful for the generous and enthusiastic support of its primary sponsors:





## Just two examples of industry support for local arts in Colorado:

- Pioneer Natural Resources supports the Southern Colorado Repertory Theatre through donations and purchasing blocks of tickets for employee nights
- XTO Energy has been a corporate sponsor of concerts for Durango's "Music in the Mountains" for several years

## Equipment Donations to Trinidad Jr. College Energy Production & Industrial Construction Training Programs







## Western slope education alliances

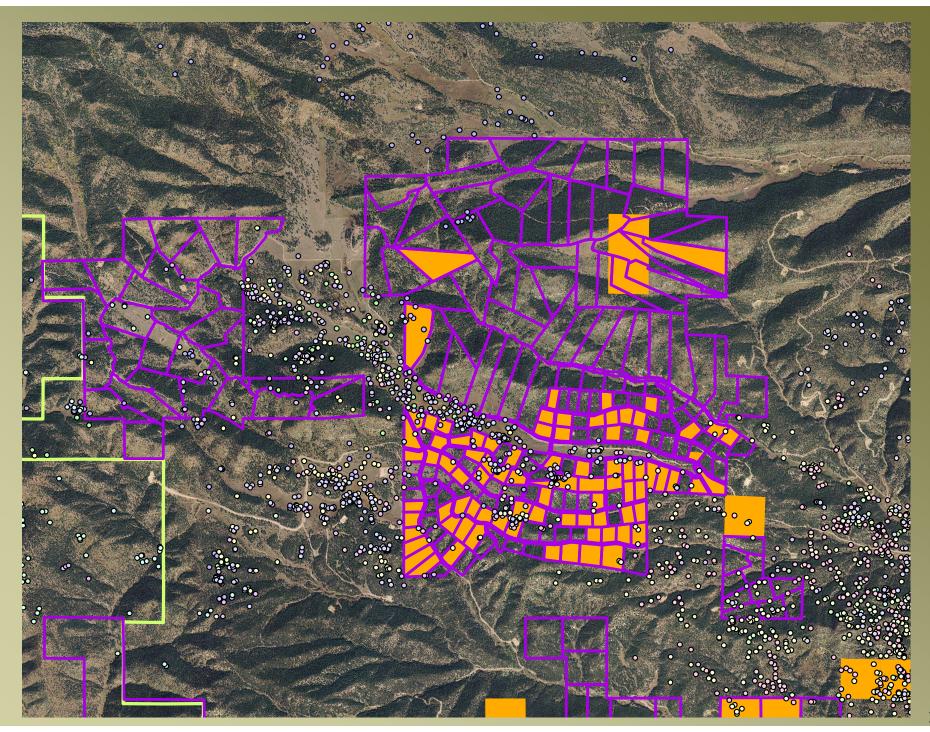
- Cooperative training programs with Colorado Mountain College for energy industry employees and contractors
- B-P initiating a project to build a Southwest Colorado Discovery museum in Durango
- EnCana donated \$200,000 to Western State College-Natural Resource Management Program
- B-P in cooperation with Southern Ute Tribe sponsors SW Colorado Science Fair
- Colorado Mountain College-Rifle Campus has received <u>over \$3 million</u> from EnCana over the past five years

# What are energy companies doing for... environmental stewardship?



## Sponsoring Wildlife Research in Colorado





## Research to help Colorado deer herds

- XTO Energy donated \$60,000 to the Colorado Cervid Research and Recovery Institute
- The institute researches Chronic Wasting Disease
- XTO Energy was the first Corporate "Cornerstone" Sponsor of this research
- Other energy companies have provided financial support.
- An XTO Vice-President is the Board President for CRRI.



# Environmental Stewardship: Wildlife Habitat Projects



## Conservation In Action



## Conservation in Action Projects: Wildlife

- Williams Energy gave \$600,000 to initiate a study with Colorado DOW to assess deer movement in energy development areas.
- **Shell** transferred 1,800 acres of land adjacent to the Oak Ridge State Wildlife Area, a prime elk wintering range, to the Colorado DOW.
- Colorado DOW and the BLM worked with Laramie Energy and Laramie Land & Cattle on a pilot project to assess grazing, wildlife habitat enhancement and protection near Grand Junction.

## Conservation in Action Project: Air Quality

EnCana in partnership with Colorado State University

## <u>Piceance Basin of NW Colorado</u>

- Investigating ways to use fuel and oil additives to increase efficiency and reduce emissions from the diesel engines that power drilling rigs
- Also has the potential to reduce emissions from natural gas fired compressor engines
- Additives may help cut carbon monoxide emissions

## Conservation in Action: Increased Recreation Opportunities

• **Shell and EnCana** reached agreements with Colorado DOW to allow public hunting on 36,000 acres of private land owned by the companies in the Piceance Creek area.

# Environmental Stewardship: Using Innovative Approaches to Reduce Visual Impacts



## Western Slope: Water Treatment Pilot Project



## B-P installs \$1.5 million in new noise mitigation technology on new "small foot-print" compressor station



## Noise reduction and reduced field emissions:

## --Field electrification



## Wildlife Protection

Installing devices on power line poles to protect sage grouse and roosting hawks and eagles in Moffatt County



# Beyond Taxes and Economic Development: Energy Companies...

- Provide Community
   Assistance and
   Development
- Support Local Arts
- Build Alliances with Education
- Support Environmental Stewardship



## **Contact Information**

## **Jay Still**



Executive Vice President – Western Division

Pioneer Natural Resources USA Inc.

## Gerald Jacob, Ph.D.

**Environmental-Regulatory Manager** 

Pioneer Natural Resources USA Inc.

1401 17<sup>th</sup> Street, Ste 1200

Denver, CO 80202

303-298-8100

## Rocky Mountain Natural Gas Prices and Pipeline Export Capacity

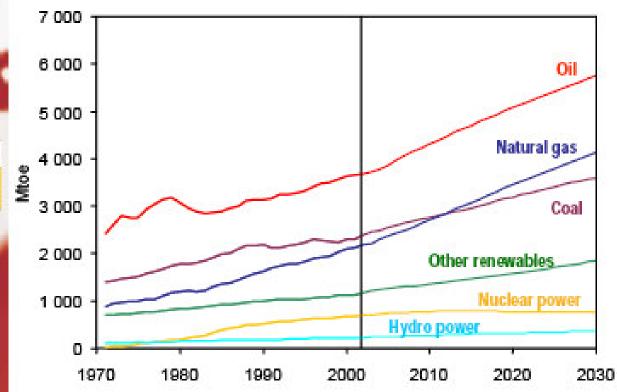
# Presentation to the Interim Committee on Severance Taxes

Tuesday, August 28, 2007
John A. Harpole
Mercator Energy



# OUTLOOK

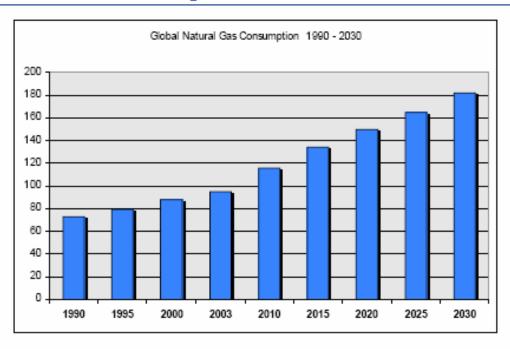
## **World Primary Energy Demand**



Fossil fuels account for almost 90% of the growth in energy demand between now and 2030



## Global Natural Gas Consumption



- •Global consumption forecast estimates are varied. EIA reports that growth will escalate at approx. 2.4% / year with consumption targets to exceed 180tcf/year by 2030.
- •The growing variance between regional supply and demand will require an increase in the flow of energy from major supply basin such as Russia, Norway, Australia, Middle East and Asia to the major markets such as the U.S, China, India and a variety of European countries. LNG is the most efficient solution as pipeline infrastructure can address some of the regional imbalances but LNG is truly able to fill the holes.
- Liquefaction, re-gas and shipping infrastructure changes are required and have been made. The markets have responded by increasing reserve capacity in all three areas.



## Natural Gas Volumes: A Perspective

- 1 MCF is the volume of gas required to fill a 10'x10'x10' room
- 84 MCF is the volume of gas the avg. US home uses per year
- 1 BCF/Day is the daily volume produced in the Powder River Basin
- 1 BCF is the avg. volume of gas a Piceance Basin well will produce over its lifetime
- 1.8 BCF/Day is the Export Capacity of the Kern River Pipeline
- 3 BCF is the volume of gas contained in 1 LNG Tanker, which is enough to heat approximately 35,000 homes for one year.

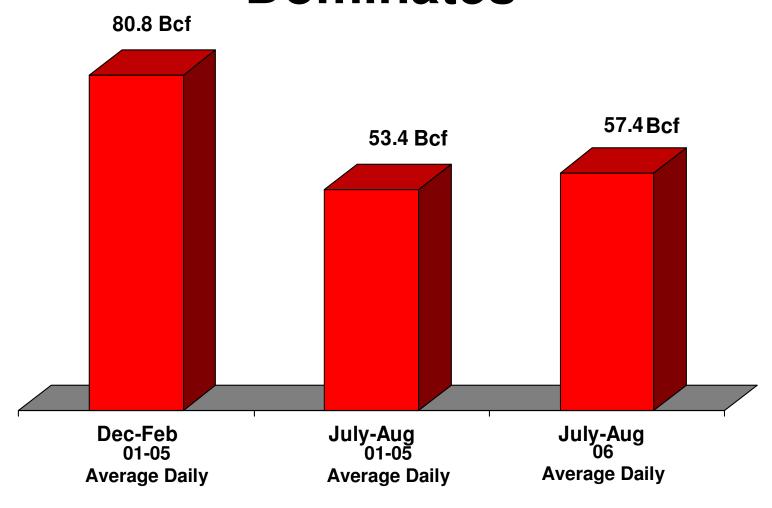


## Natural Gas Volumes: A Perspective (cont'd)

- 7 BCF is the avg. daily amt. of gas consumed in California
- 11 TCF is the amount of Reserves in Jonah Field
- 500 TCF is the total reserve estimate for the world's largest gas field, located in Iran

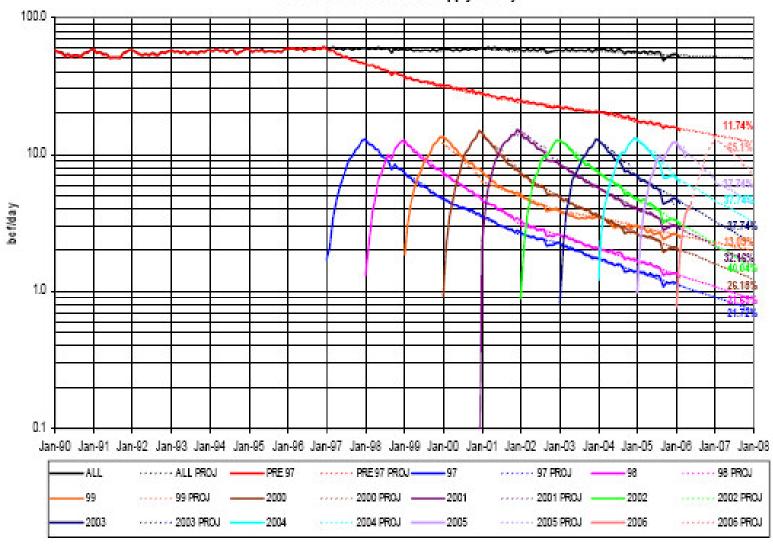


# While Summer Power Demand Is Growing, Winter Demand Still Dominates

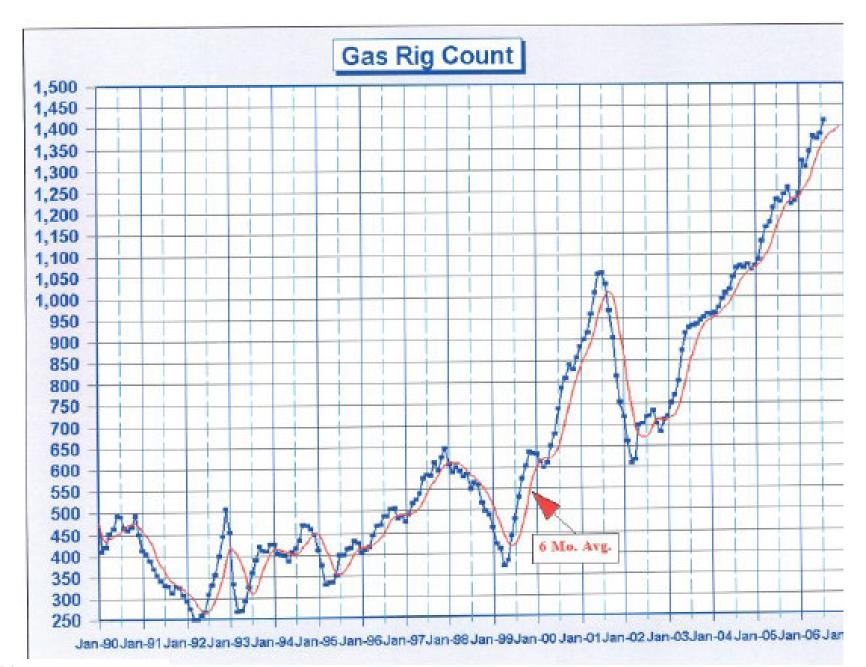


cator<u>Energy</u>

#### United States Natural Gas Supply History









## United States Natural Gas Supply/Demand History and Forecast

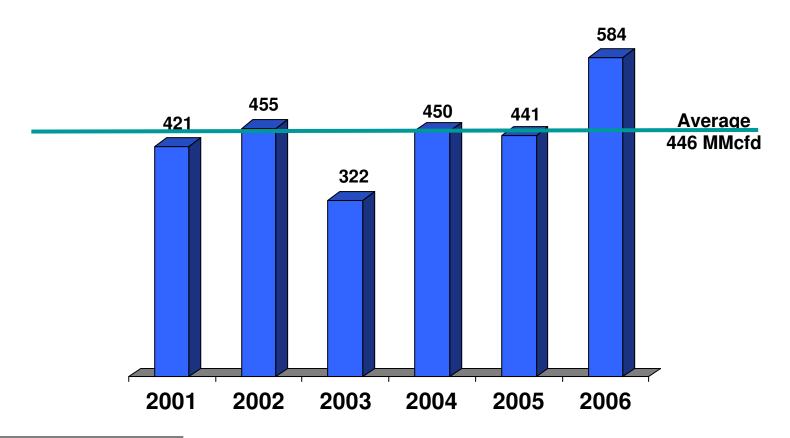
	2000	2001	2002	2003	2004	2005	2006	2007
US demand-normalized	61.6	63.8	64.9	65.51	64.01	65.29	66.59	67.26
US Supply	52.55	53.7	51.86	54.17	53.21	50.82	49.10	47.94
Kern River Expansion	i.			0.5				
Net Imports	9.69	9.37	9.59	8.94	9.32	9.85	10.65	11.7
Total Supply	62.24	63.57	61.45	63.61	62.53	60.67	59.75	59.64
Demand retardation by p recession, fuel switching,		4.97						
S/D Balance	0.64	4.74	(3.45)	(1.90)	(1.48)	(4.62)	(6.84)	(7.62)





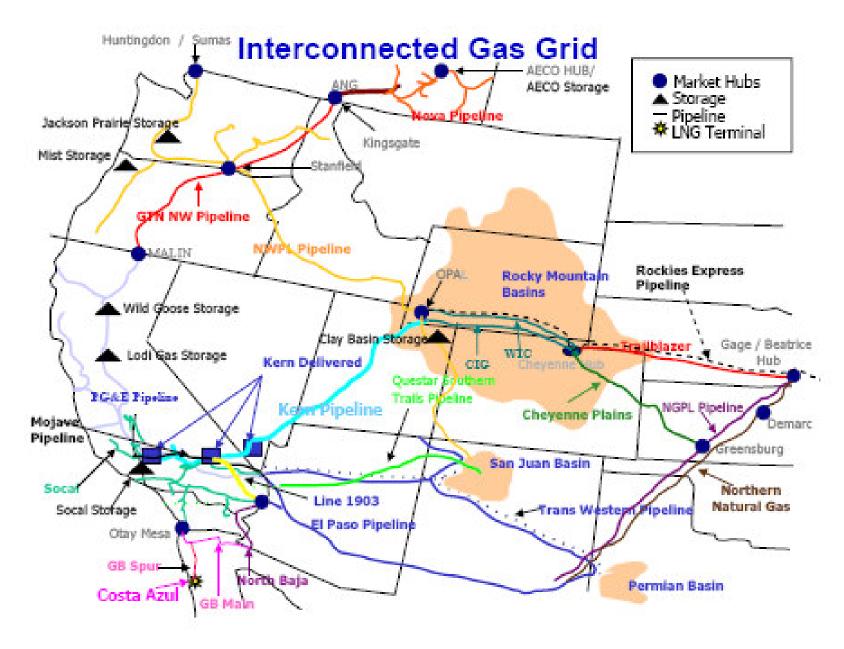


# Since 2001, Incremental Rockies Volumes Have Averaged 446 MMcfd

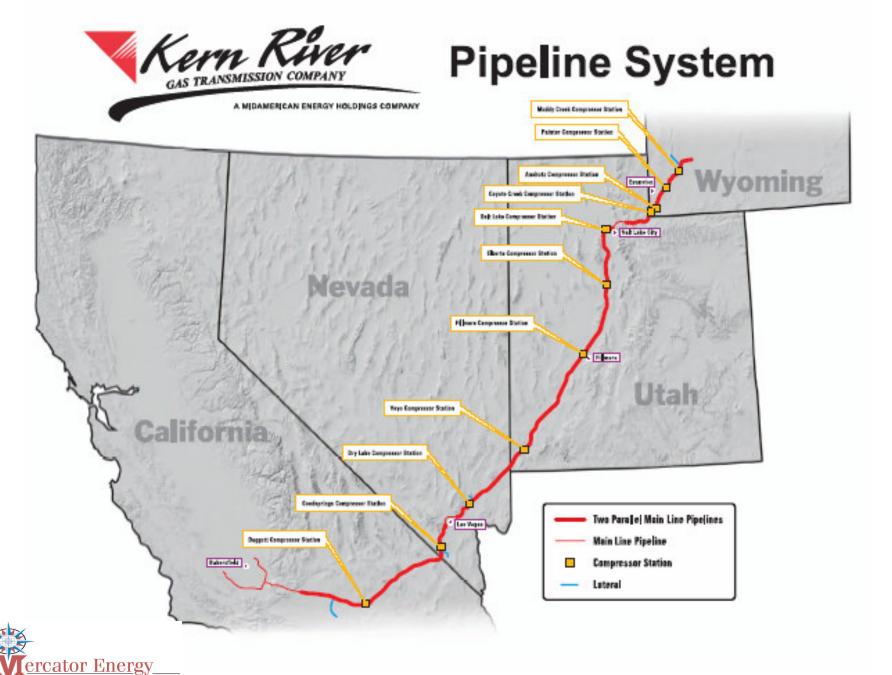


Changes in Gross Withdrawals



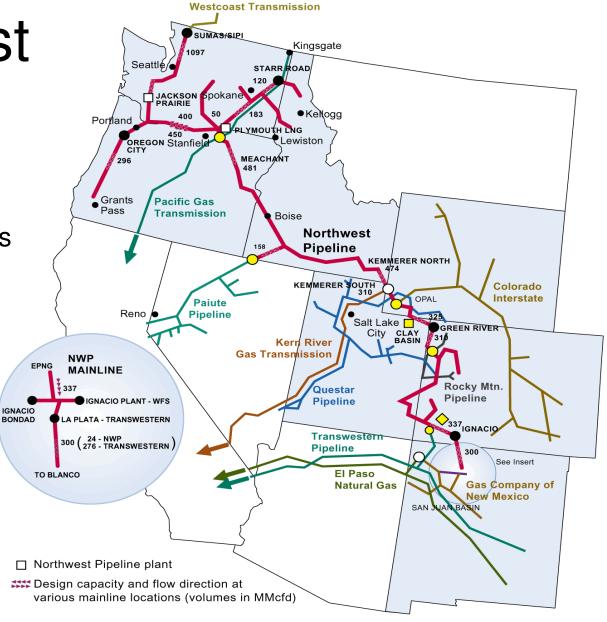






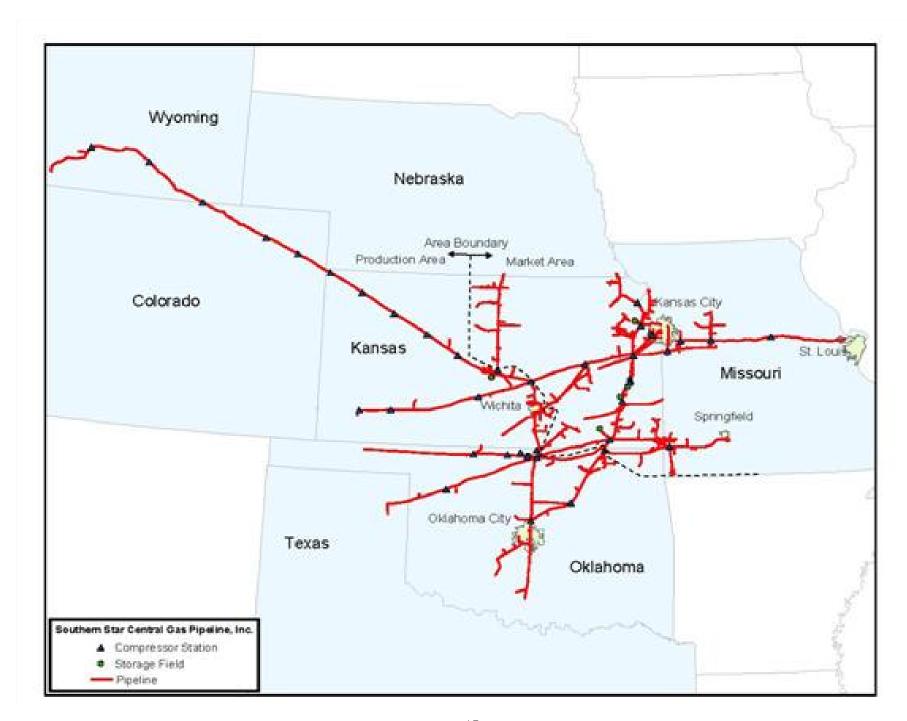
Northwest Pipeline System

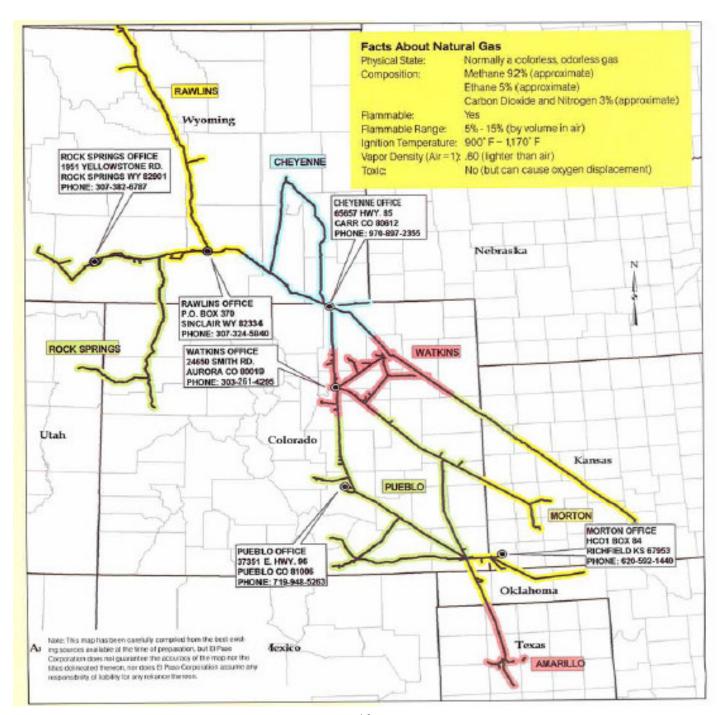
and interconnections with other pipeline companies

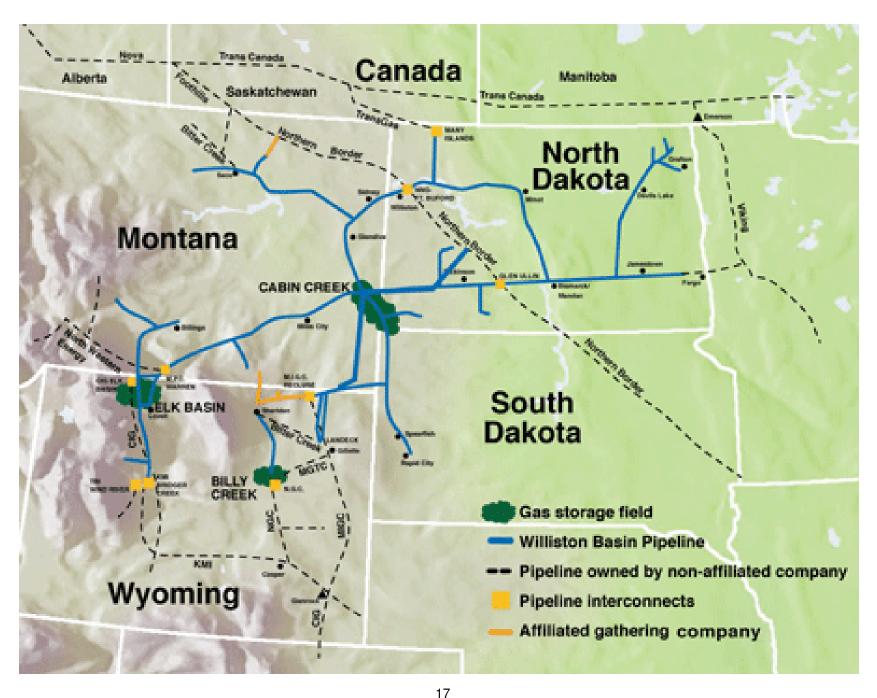


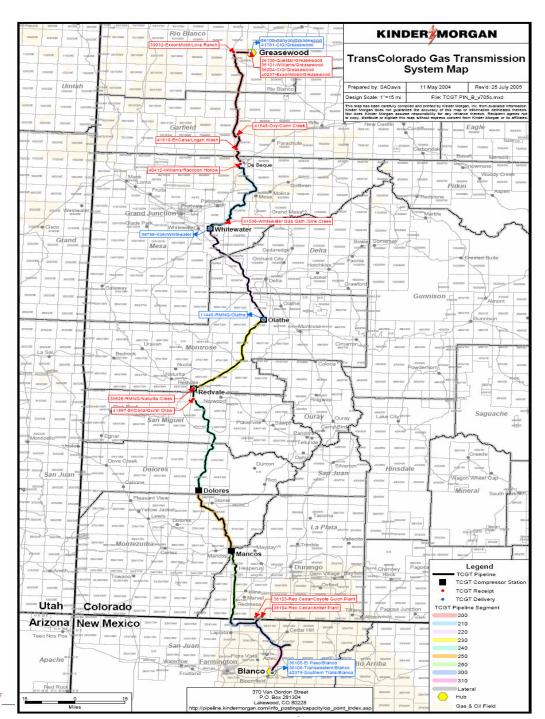


Source: Williams Northwest Pipeline, Pacific Northwest Region Annual Summit, July 2003



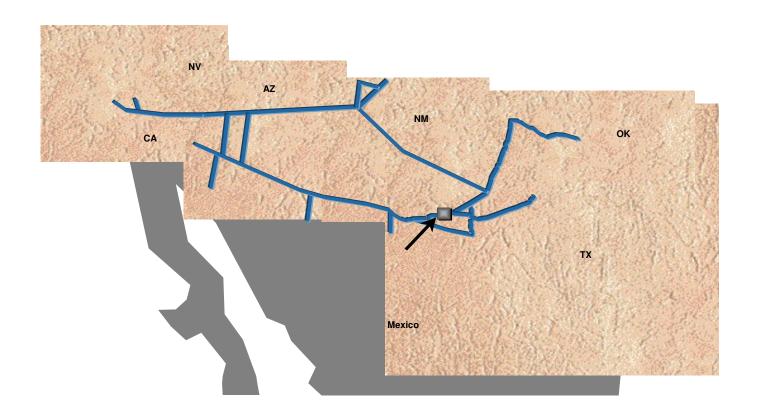




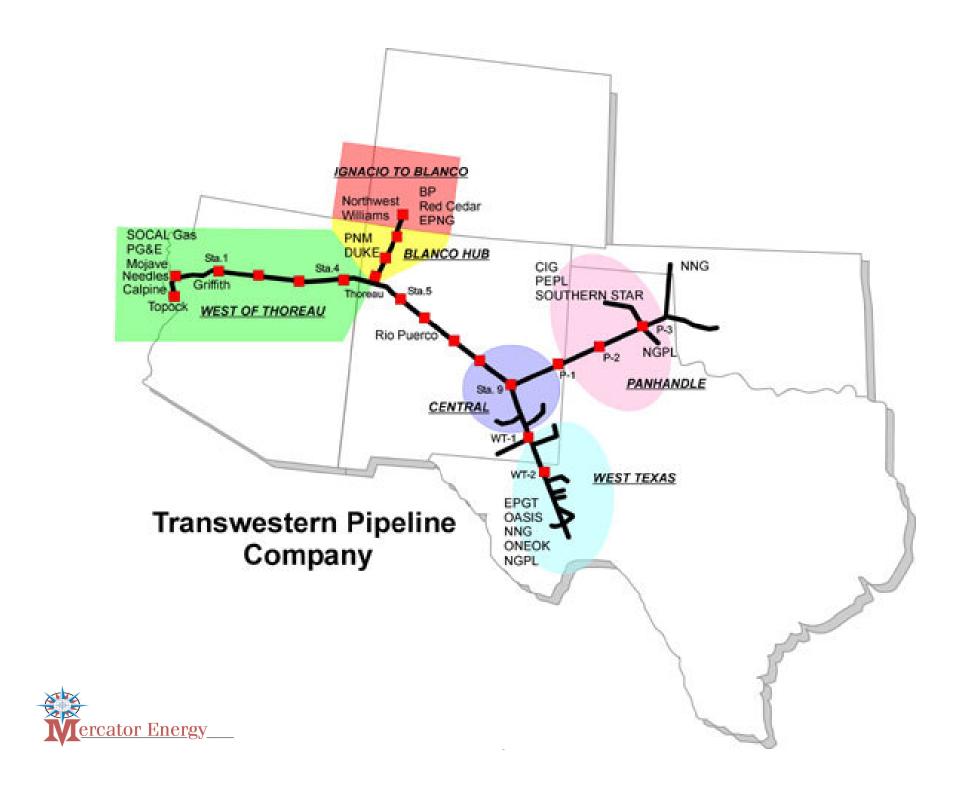




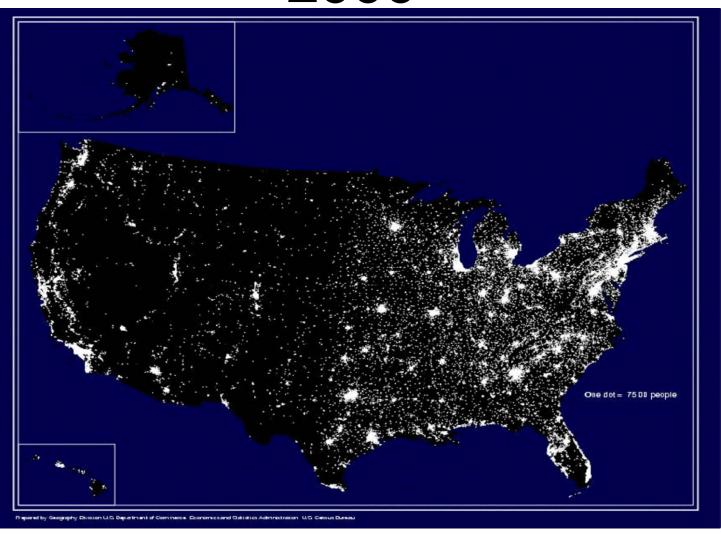
### El Paso Natural Gas Pipeline





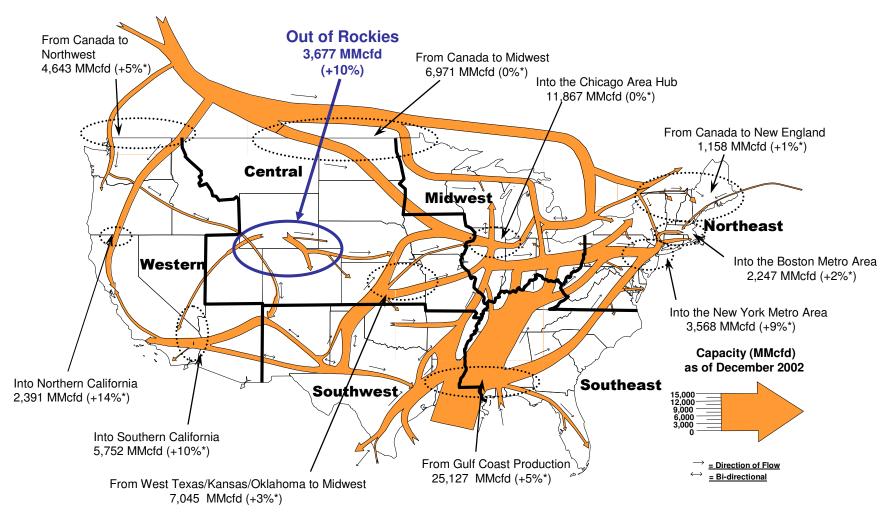


# US Population Distribution 2000





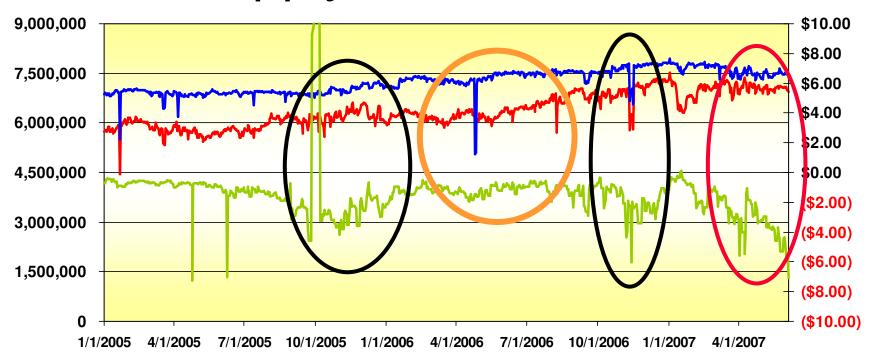
### **Natural Gas Transportation**



<sup>\*</sup> Percent change since 2000. Source:Modified from Energy Information Administration, GasTran Gas Transportation Information System, Natural Gas Pipeline State Border Capacity Database.



### Rockies Prices Generally Reflect The Supply/Demand Balance

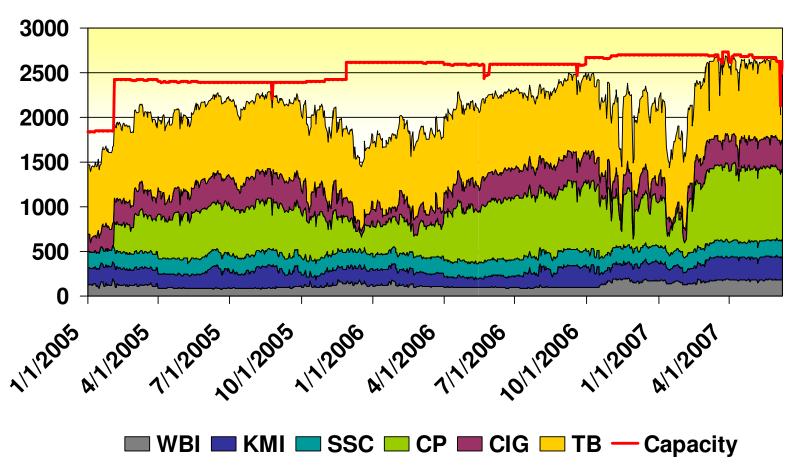


- Rockies prices have historically behaved rationally.
  - When supply tightens relative to demand (export capacity) basis widens
  - When supply is abundant relative to demand basis is flat
- Today, capacity is extremely tight and prices are extremely low

rcator Energy

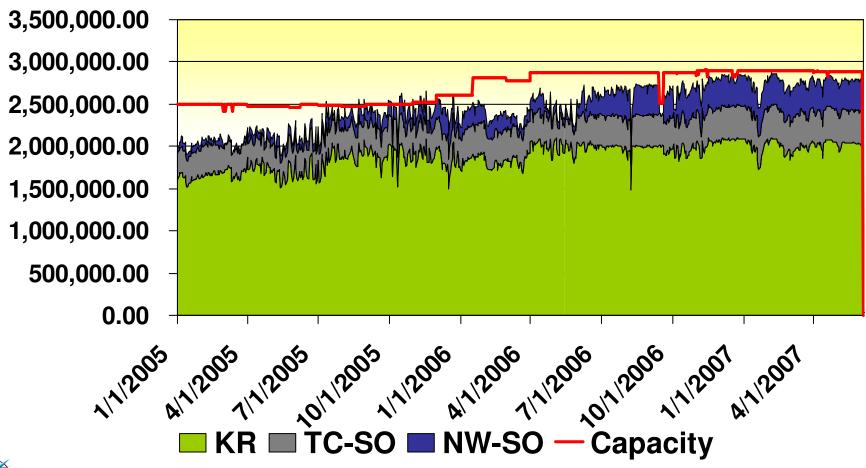
Source: Bentek Energy

## Rockies Pipeline Export Capacity Moving East



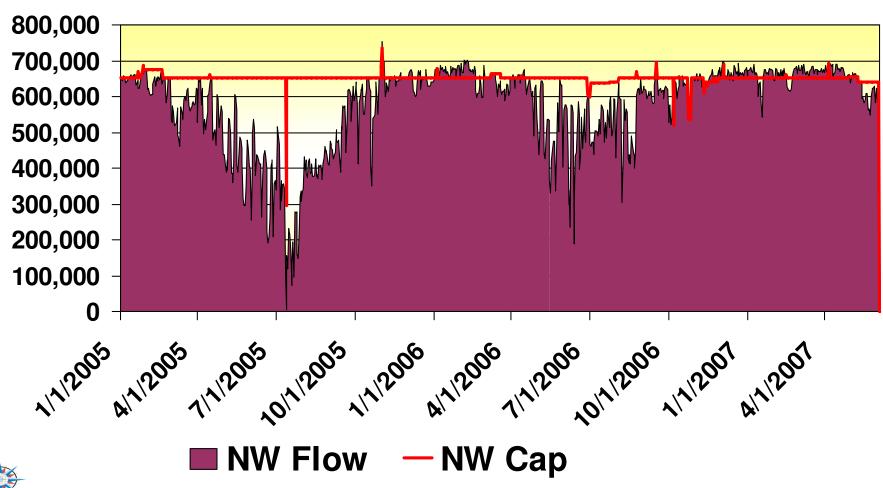


# Rockies Pipeline Export Capacity Moving Southwest



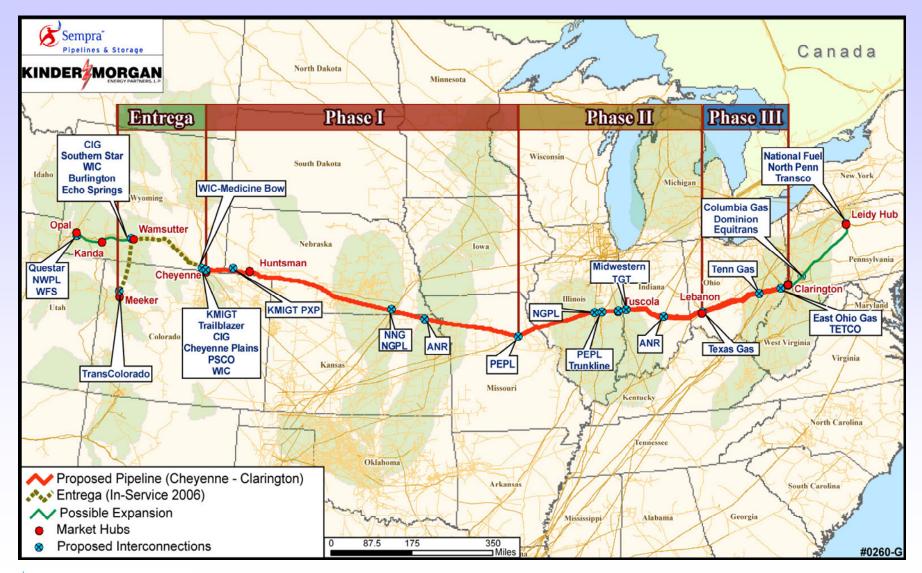


# Rockies Pipeline Export Capacity Moving Northwest





#### **Rockies Express Pipeline Proposed Route**





## Rockies Express Committed Parties (MMBtu/day)\*

TOTAL	1,825,000
Berry Petroleum	10,000
Arrowhead Resources	10,000
Bill Barrett Corp	20,000
Royal Dutch Shell	42,000
Yates Petroleum	43,000
MMS	50,000
EOG Resources	50,000
Ultra	200,000
Sempra	200,000
ВР	300,000
ConocoPhillips	400,000



## Rockies Natural Gas Future Prices\*

	Nymex/Natural Gas Futures Contract	Basis Differential	Outright Price
Bal 2007	\$8.14	(\$3.03)	\$5.11
Cal 2008	\$8.63	(\$1.40)	\$7.23
Jan09- May09	\$8.70	(\$1.13)	\$7.57
Jun09-Dec09	\$8.03	(\$0.97)	\$7.06

<sup>\*</sup>All prices in \$/MMBtu. Rockies price based on NW/Kern indices. Based on 4/5/07 market activity.

## Rockies Natural Gas Future Prices\*

	Nymex/Natural Gas Futures Contract	Basis Differential	Outright Price
Bal 2007	\$6.29	(\$3.00)	\$3.29
Cal 2008	\$7.73	(\$1.52)	\$6.21
Jan09- May09	\$8.30	(\$1.38)	\$6.92
Jun09-Dec09	\$7.89	(\$1.25)	\$6.64

<sup>\*</sup>All prices in \$/MMBtu. Rockies price based on NW/Kern indices. Based on 8/28/07 market activity.

## Rockies Natural Gas Historical Prices

	Northwest/Kern	Basis Differential	Nymex
2002	\$2.03	(\$1.23)	\$3.26
2003	\$4.12	(\$1.32)	\$5.44
2004	\$5.25	(\$0.84)	\$6.09
2005	\$6.99	(\$1.56)	\$8.55
2006	\$5.67	(\$1.59)	\$7.26
2007*	\$4.37	(\$2.70)	\$7.07

Note: All prices in \$/MMBtu. Rockies price based on NW/Kern indices.

<sup>\*2007</sup> is based on reported prices through August 2007.

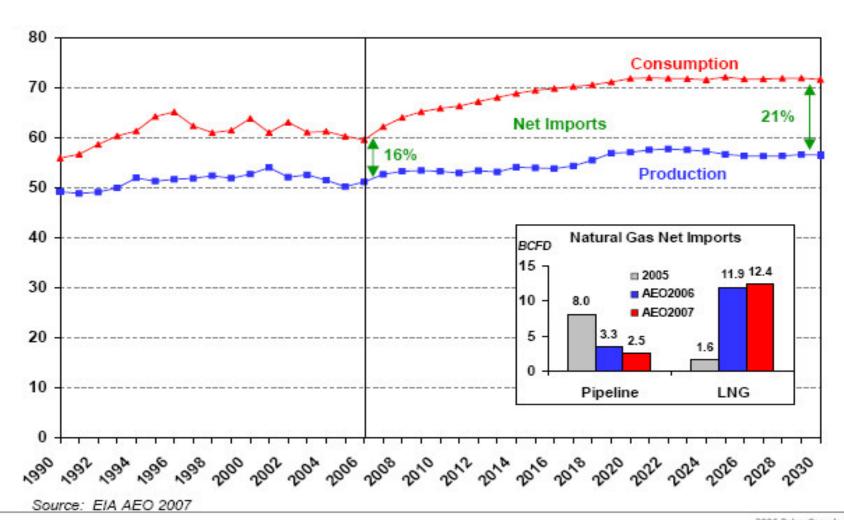
### The UPSIDE?

 What an additional \$1.38/MMBtu could mean to Rocky Mountain Natural Gas Producers.

 Additional \$4 billion/yr (assuming 8 BCF/D of Rockies Exports).



## U.S. Demand for Gas Will Continue to Outstrip Domestic Supply

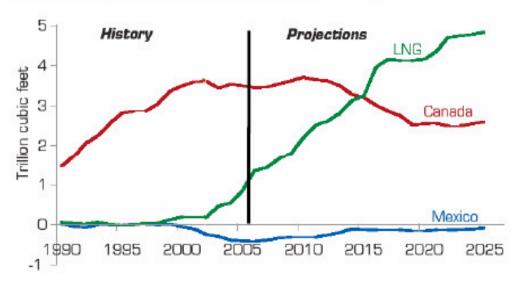




2006 Petro-Canada | 3

#### Where will the US get gas in the Future

Net U.S. Imports of Natural Gas, 1990-2025



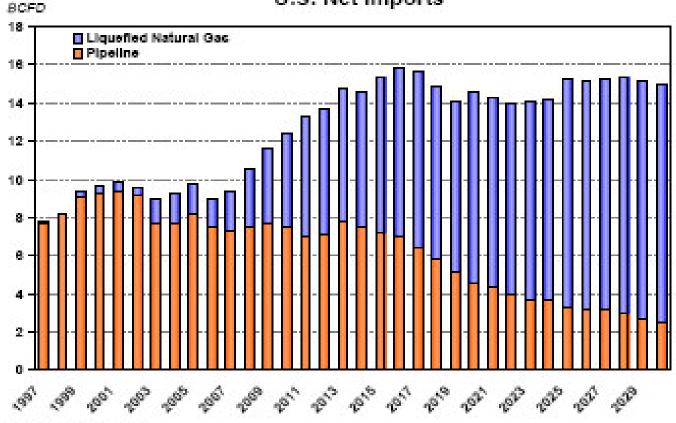
Source: Energy Information Administration, Annual Energy Outlook 2004, Reference Case

- EIA's view is that natural gas production is expected to decline, and LNG imports are expected to replace declining conventional Canadian gas imports from 2020.
- Eventually from 2020, unconventional gas production is expected to replace/increase pipeline imports.



#### U.S. Will Rely More on LNG Imports as Opposed to Pipeline Imports from Canada



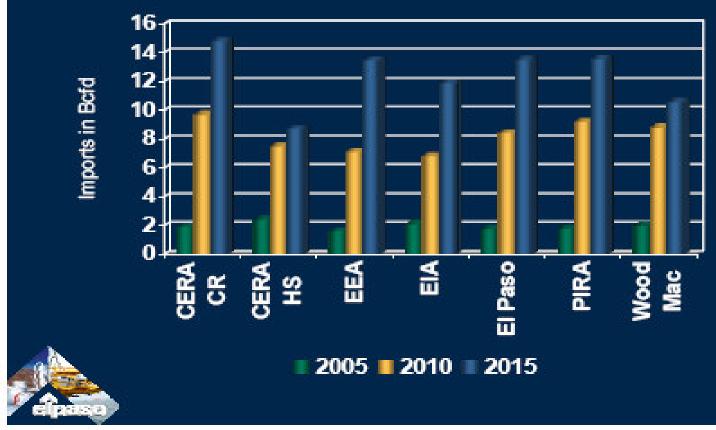


Source: EIA AEO 2007

2006 Petro-Carada



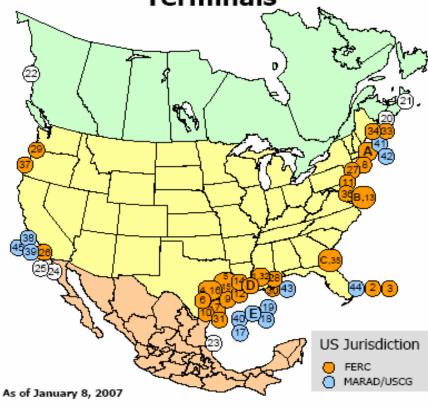
## U.S. LNG Import Projections





#### *FERC*

#### **Existing and Proposed** North American LNG **Terminals**



- \* US pipeline approved; LNG terminal pending in Bahamas

#### Office of Energy Projects

- A. Everett, MA: 1.035 Bcfd (SUEZ/Tractebel DOMAC) B. Cove Point, MD: 1.0 Bcfd (Dominion - Cove Point LNG) C. Elba Island, GA: 1.2 Bcfd (El Paso - Southern LNG) D. Lake Charles, LA: 2.1 Bcfd (Southern Union - Trunkline LNG)
- E. Gulf of Mexico: 0.5 Bcfd (Gulf Gateway Energy Bridge Excelerate Energy)

APPROVED BY FERC

- 1. Hackberry, LA: 1.5 Bcfd (Cameron LNG Sempra Energy)
- Bahamas: 0.84 Bcfd (AES Ocean Express)\* 3. Bahamas : 0.83 Bcfd (Calypso Tractebel)\*
- Freeport, TX: 1.5 Bcfd (Cheniere/Freeport LNG Dev.)
- Sabine, LA: 2.6 Bcfd (Sabine Pass Cheniere LNG)
   Corpus Christi, TX: 2.6 Bcfd (Cheniere LNG)
- 7. Corpus Christi, TX: 1.1 Bcfd (Vista Del Sol ExxonMobil) 8. Fall River, MA: 0.8 Bcfd (Weaver's Cove Energy/Hess LNG)
- 9. Sabine, TX: 2.0 Bcfd (Golden Pass ExxonMobil)
- 10. Corpus Christi, TX: 1.0 Bcfd (Ingleside Energy Occidental Energy Ventures)
- Logan Township, NJ: 1.2 Bcfd (Crown Landing LNG BP)
- 12. Port Arthur, TX: 3.0 Bcfd (Sempra)
- 13. Cove Point, MD: 0.8 Bcfd (Dominion)
- 14. Cameron, LA: 3.3 Bcfd (Creole Trail LNG Cheniere LNG)
- Sabine, LA: 1.4 Bcfd (Sabine Pass Cheniere LNG Expansion)
- 16. Freeport, TX: 2.5 Bcfd (Cheniere/Freeport LNG Dev. Expansion)

#### APPROVED BY MARAD/COAST GUARD

- 17. Port Pelican: 1.6 Bcfd (Chevron Texaco)
- 18. Louisiana Offshore: 1.0 Bcfd (Gulf Landing Shell)
- 19. Offshore Louisiana: 1.0 Bcfd (Main Pass McMoRan Exp.)

#### CANADIAN APPROVED TERMINALS

- 20. St. John, NB: 1.0 Bcfd (Canaport Irving Oil/Repsol)
- 21. Point Tupper, NS 1.0 Bcfd (Bear Head LNG Anadarko)
- 22. Kitimat, BC: 1.0 Bcfd (Kitimat LNG Galveston LNG)

#### MEXICAN APPROVED TERMINALS

- 23. Altamira, Tamulipas: 0.7 Bcfd (Shell/Total/Mitsui)
- 24. Baja California, MX: 1.0 Bcfd (Energy Costa Azul Sempra)
- Baja California Offshore: 1.4 Bcfd (Chevron Texaco)

#### PROPOSED TO FERC

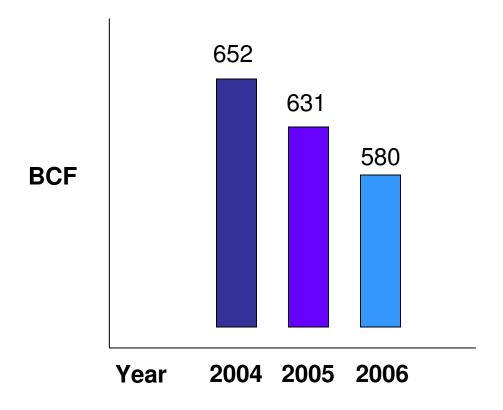
- 26. Long Beach, CA: 0.7 Bcfd, (Mitsubishi/ConocoPhillips Sound Energy Solutions)
- 27. LI Sound, NY: 1.0 Bcfd (Broadwater Energy TransCanada/Shell)
- 28. Pascagoula, MS: 1.5 Bcfd (Gulf LNG Energy LLC)
- 29. Bradwood, OR: 1.0 Bcfd (Northern Star LNG Northern Star Natural Gas LLC)
- 30. Pascagoula, MS: 1.3 Bcfd (Casotte Landing ChevronTexaco)
- Port Lavaca, TX: 1.0 Bcfd (Calhoun LNG Gulf Coast LNG Partners)
- 32. Hackberry, LA: 1.15 Bcfd (Cameron LNG Sempra Energy Expansion)
- 33. Pleasant Point, ME: 2.0 Bcfd (Quoddy Bay, LLC)
- 34. Robbinston, ME: 0.5 Bcfd (Downeast LNG Kestrel Energy)
- 35, Elba Island, GA: 0.9 Bcfd (El Paso Southern LNG)
- 36. Baltimore, MD: 1.5 Bcfd (AES Sparrows Point AES Corp.)
- 37. Coos Bay, OR: 1.0 Bcfd (Jordan Cove Energy Project)

#### PROPOSED TO MARAD/COAST GUARD

- 38. Offshore California: 1.5 Bcfd (Cabrillo Port BHP Billiton)
- 39. Offshore California: 0.5 Bcfd, (Clearwater Port LLC NorthernStar NG LLC)
- 40. Gulf of Mexico: 1.5 Bcfd (Beacon Port Clean Energy Terminal ConocoPhillips)
  41. Offshore Boston: 0.4 Bcfd (Neptune LNG SUEZ LNG)
- 42. Offshore Boston: 0.8 Bcfd (Northeast Gateway Excelerate Energy)
- 43. Gulf of Mexico: 1.4 Bcfd (Bienville Offshore Energy Terminal TORP)
- 44. Offshore Florida: ? Bcfd (SUEZ Calypso SUEZ LNG)
- 45. Offshore California: 1.2 Bcfd (OceanWay Woodside Natural Gas)

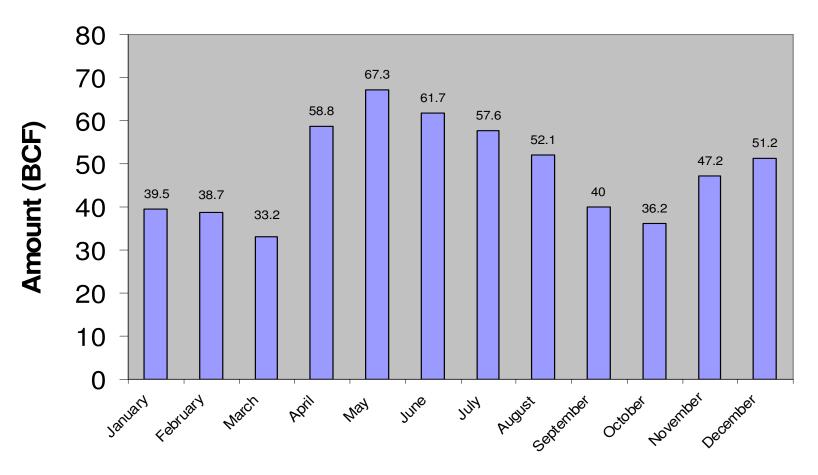


# Actual LNG Imports to U.S. 2004 - 2006





#### 2006 US LNG Deliveries



LNG Imports - Dec. 2006 Monthly Report U.S. Department of Energy



### Who Has the Natural Gas?



# **Greatest Natural Gas Reserves**by Country, 2006

Rank	Country	Proved Reserves (trillion cu ft)
1	Russia	1,680
2	Iran	971
3	Qatar	911
4	Saudi Arabia	241
5	United Arab Emirates	214
6	United States	193
7	Nigeria	185
8	Algeria	161
9	Venezuela	151
10	Iraq	112
11	Indonesia	98

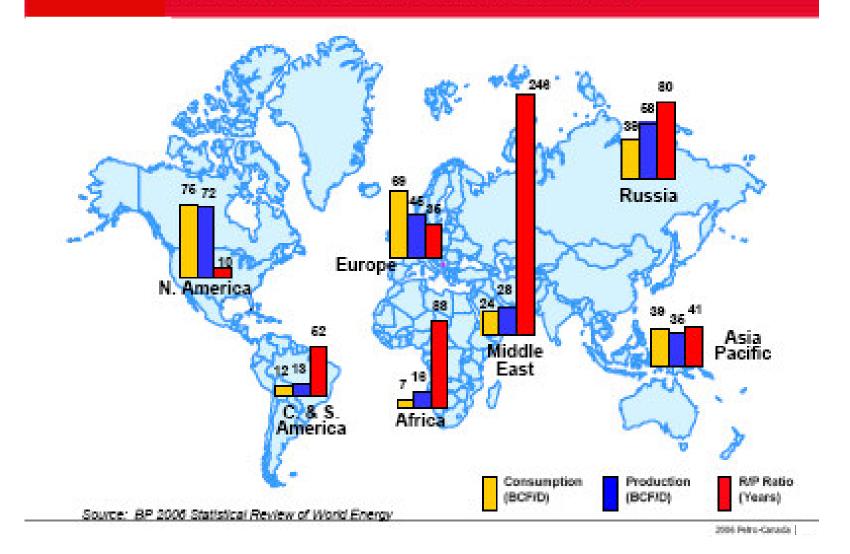


### **World Gas Reserves**

Rank	Country	Proved Reserves, Trillion Cubic Feet (2004)	Gross Gas Production, Billion Cubic Meters (2004)	Reserves to Production Ratio (R/P)*
1	Qatar	910.1	39.2	657.7
2	Iran	970.8	85.5	321.6
3	United Arab Emirates	213.9	45.8	132.3
4	Saudi Arabia	238.4	64	105.5
5	Russia	1694.4	589.1	81.5
6	Algeria	160.4	82	55.4
7	Turkmenistan	102.4	54.6	53.1
14	United States	186.9	542.9	9.8
15	Canada	56.6	182.8	8.8

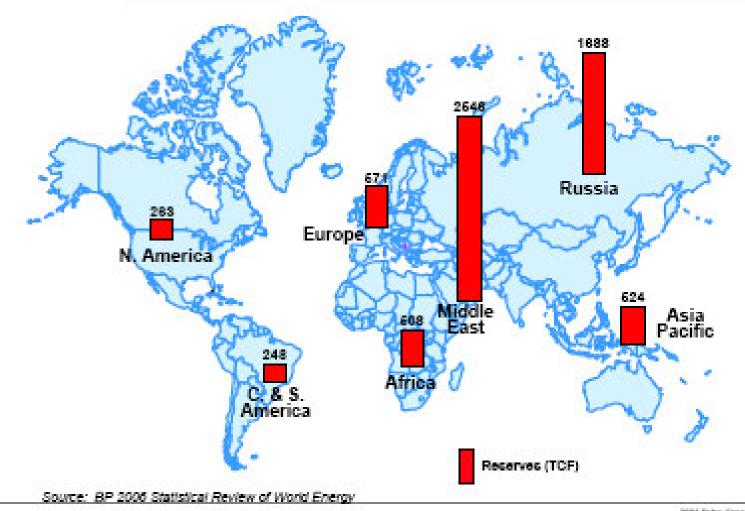


#### N. America has the Lowest R/P Ratio





#### Most of the World's Gas Reserves Are Outside of North America







#### **Energy Security**

# Consider European (EU) and Former Soviet State Supply Options

- Gazprom is the largest Russian company and is the largest extractor of natural gas in the world.
- Gazprom, with a \$200 Billion (US) market capitalization, is the world's 3<sup>rd</sup> largest corporation.
- Gazprom accounts for 93% of Russian natural gas production and 25% of the world's natural gas reserves.
- The Kremlin owns a 51% controlling interest in Gazprom.
- Gazprom supplies almost all the gas needs of Central Europe, Eastern Europe, and the former Soviet Union.



#### **Comparative Market Capitalization**

	Market Cap		Market Cap
<u>Company</u>	(US \$ Billions)	<b>Company</b>	(US \$ Billions)
TOTAL	200.1	Gazprom	271.0
Encana Corporation	37.0		
Devon Energy	29.8		
Dominion Resources	29.0		
Anadarko Petroleum	20.1		
XTO Energy, Inc.	17.5		
Williams Companies	15.7		
EOG Resources	15.5		
Noble Energy	8.7		
Ultra Petroleum	7.3		
Questar Corporation	7.2		
Pioneer Natural Resources	4.9		
Forest Oil	2.0		
Whiting Petroleum	1.7		
Berry Petroleum	1.3		
Bill Barrett Corporation	1.2		
Delta Petroleum	1.2		



# Gazprom's Near-Monopoly Supply Position

#### % of Supply from Gazprom/Russia

Slovakia	100%
Finland	99%
Bulgaria	97%
Lithuania	84%
Hungary	80%
Greece	76%
Austria	74%
Poland	62%
Turkey	60%
Germany	40%
Italy	30%
France	25%



## **Energy Security?**

 By the year 2020, Gazprom will supply nearly 70% of the European Union's natural gas.



# How is the Rocky Mountain Natural Gas Industry Responding to the Wide Basis Differentials?

# \$7.7 Billion of Pipeline and Processing Projects

Kanda Lateral
 WIC

Medicine Bow Expansion WIC

High Plains Pipeline WYCO

Totem Storage WYCO

Raton Expansion 2007 CIG

Cheyenne to Greensburg Cheyenne Plains

Yuma County Lateral Cheyenne Plains

Cheyenne Hub CP/CIG

Rockies Express Pipeline Kinder Morgan

TransColorado's Blanco to

Meeker Expansion Kinder Morgan

## Pipeline Projects (continued)

Overthrust Exp. to Opal

Overthrust-Kanda to Wamsutter

KMIGT – Colorado Lateral

Fidlar to Meeker

Divide Creek to Meeker

Southern System Exp. II

Rockies Natural Gas Pipeline

Ft.Union Ph. Land II

Kern River Expansion

Parachute Lateral

Colorado Hub Connection

Questar

Questar

Kinder Morgan

Questar

Questar

Questar

Questar

Ft. Union

Kern River

Northwest

Northwest

## Midstream/NGL Projects

 Overland Pass NGL Pipeline Oneok/Williams

### Gathering & Processing Assets

Jonah Gas Gathering Enterprise

Pioneer Cryogenic Plant Enterprise

Piceance Meeker Gathering Enterprise

Meeker Cryo Phase 1 Enterprise

Meeker Cryo Phase 2 Enterprise

Exxon Meeker Plant Exp. Enterprise

# Gathering & Processing Assets (continued)

Piceance Willow Creek

Cryo Phase 1

Williams

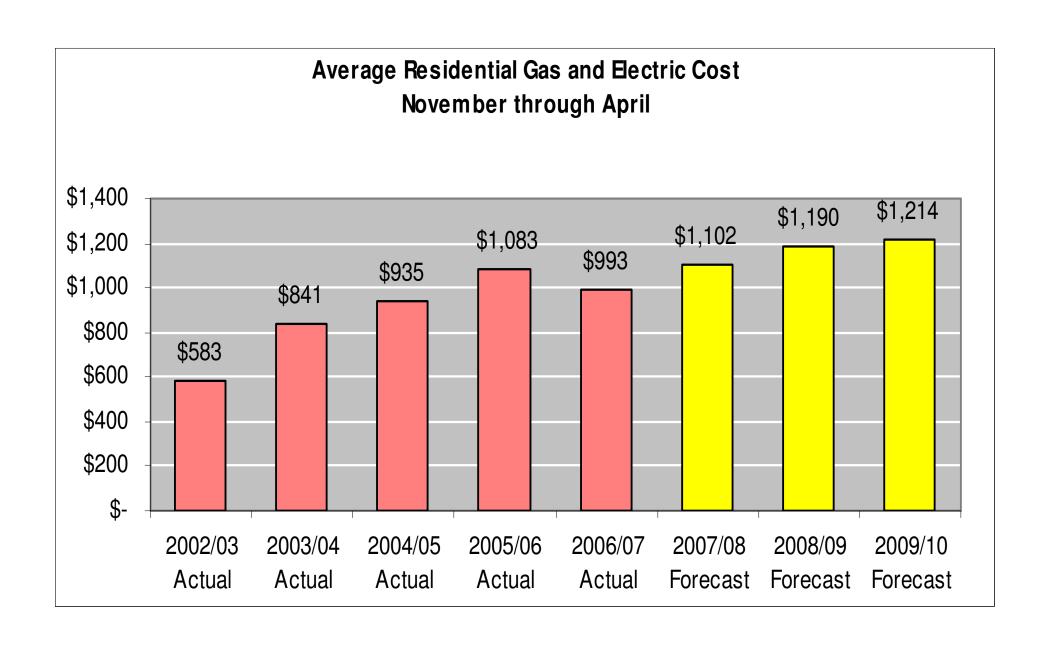
Cryo Phase 2

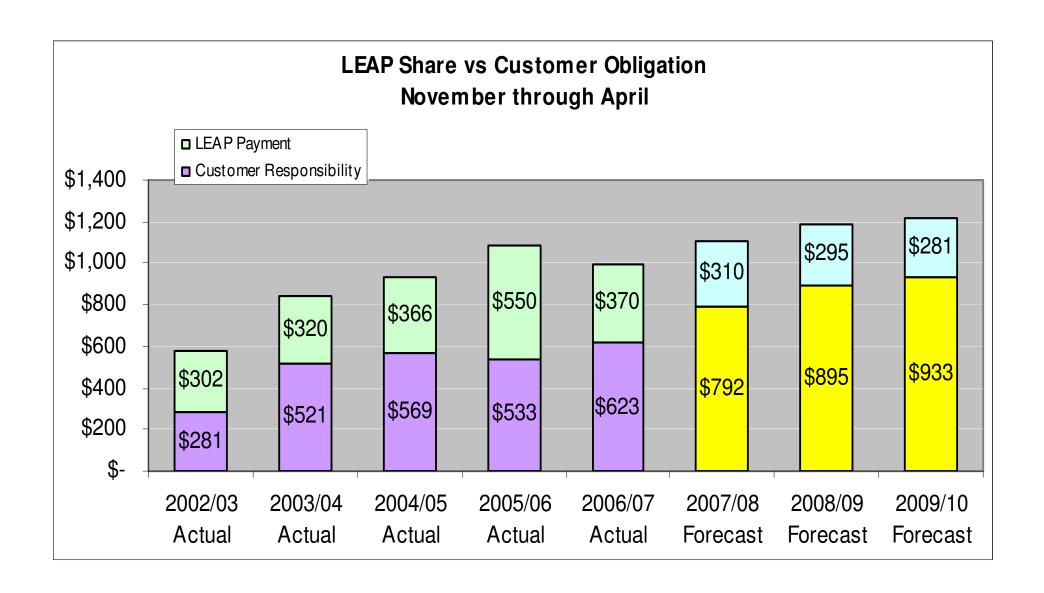
Williams

- Chapita Uintah Refrig. Plant Anadarko
- Chapita Uintah Cryo Plant Anadarko

#### Enterprise's Meeker Processing Plant







#### **Contact Information**

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#### **Credits and Thanks To**

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- Beth Bowman, Shell Trading (LDC Forum)
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